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BPA COLUMBIA RIVER SALMON RESTORATION

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BPA Columbia River Salmon Restorati...

OVERSIGHT HEARING
BEFORE THE
TASK FORCE ON
BONNEVILLE POWER ADMINISTRATION
OF THE
COMMITTEE ON
NATURAL RESOURCES
HOUSE OF REPRESENTATIVES
ONE HUNDRED THIRD CONGRESS

FIRST SESSION

ON

SALMON RESTORATION IN THE COLUMBIA RIVER BASIN

HEARING HELD IN BOISE, ID
SEPTEMBER 24, 1993

Serial No. 103-20 PART III

Printed for the use of the Committee on Natural Resources



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SALMON RESTORATION IN THE COLUMBIA RIVER BASIN

FRIDAY, SEPTEMBER 24, 1993

HOUSE OF REPRESENTATIVES,
TASK FORCE ON BONNEVILLE POWER ADMINISTRATION,
COMMITTEE ON NATURAL RESOURCES,
Washington, DC.

The task force met, pursuant to call, at 8 a.m. in the Gold Room, Idaho State House, Boise, Idaho, Hon. Peter DeFazio (chairman of the task force) presiding.

Mr. DEFazio. I welcome everyone here today. Since in good part we are here because of my colleague, Mr. LaRocco, who insisted that his concerns and the concerns of his State and district should be heard at the source from the people, we are in Idaho. So I am going to defer to him for his opening statement, then I will make mine, and then we will move on with the hearing.

STATEMENT OF HON. LARRY LaROCCO

Mr. LaROCCO. Thank you very much, Mr. Chairman. Peter, let me welcome you to Idaho and let me welcome you to Boise, our great State welcomes you with open arms. Just a couple of weeks ago, our colleagues Collin Peterson and Charlie Rose were sitting at this very dais here; we had a hearing on forest health, an issue of grave concerns to my constituents. And I am very pleased that you have brought the BPA Task Force here to Idaho to listen to our concerns about fish, about salmon.

I have a few opening remarks but I am going to be extremely brief because I know that we have a lot of witnesses and only one day to hear from them.

First of all, let me thank my colleague from Oregon, Peter DeFazio, again for taking on the difficult responsibility of oversight of the Bonneville Power Administration and for holding this task force hearing on endangered salmon in Idaho.

It is important that we hold this hearing on the endangered salmon runs in Idaho because Idahoans have the most to lose from the extinction of these magnificent fish, as well as the most to gain if we can bring these fish back.

From the spawning creeks and pools of the Sawtooth Mountains, through the Snake and Columbia Rivers to the Pacific Ocean and back, the sockeye and chinook salmon runs, possibly more than any other single resource, capture the true spirit of the Northwest.

Unfortunately, we are letting this spirit—this heritage—slip away from us.

The prime cause of the salmon's demise is obvious—more than 90 percent of juvenile salmon die on their voyage to the ocean because of the dams. For 50 years, hydroelectric dams have driven the economy of the Pacific Northwest. They have given us light, heat, power, jobs, security and a future for our children. They have done all this at a remarkably low cost and without the pollution found with most other electrical generation.

But that power, that economic engine of the Northwest, has not come without costs.

It is imperative that the entire region, that the people of the Northwest—Idaho, Washington, Oregon and Montana—come together as a region to save this magnificent fish. Farmers, irrigators, shippers, sportsmen, industry, recreational and electricity users—we must all be willing to sacrifice a little now so that we may save our Pacific Northwest heritage for our children.

There is much debate about the best way to recover the wild salmon and the economic effects of recovery plans. This will, and should, be debated. We all must agree on one thing, however: *We cannot let these wild salmon become extinct on our watch.* To allow them to go extinct is to admit that we cannot protect the resources that make people want to live in this beautiful region. I am not ready to admit that.

Thank you, Mr. Chairman. I look forward to the testimony of our distinguished Attorney General as our first witness, and of course the rest of our distinguished witnesses.

Again, thank you, Peter.

Mr. DEFAZIO. I thank my colleague, who is one of the most knowledgeable and hardest working members of the Natural Resources Committee on a wide range of natural resource issues, and I really welcome his presence here today to help us work our way through what is a very, very contentious debate over how we can best provide for a plentiful future for our salmon.

Just a couple of procedural things. First, we have set the time limits for the witnesses; the time limits will be extraordinarily strictly enforced. You will be basically allowed to finish a sentence when the red light goes off. You know, I have had a number of people say, well gee, they are at this point, they did not get to testify. You know, we flew in from Washington last night and we have to do another all-day hearing in Eugene tomorrow, and I have done my best to accommodate the widest range of interests possible. You know, we have included 16 people to testify, which is a lot to get through in one day.

What we will do is take your testimony and further thoughts in writing, and we will leave the record open for two weeks, unless my colleague has any objections—

Mr. LAROCO. No objection, Mr. Chairman.

Mr. DEFAZIO. Okay, so the written record will be left open for 2 weeks.

I have read all the testimony that was submitted prior to yesterday, and there are two laggards who did not, and I will make a point when they testify, but what I would suggest the rest of you do, since I have read it and I know Mr. LaRocco and his staff and my staff are all familiar with it, that you do your best to summarize your most cogent points rather than reading something which

we are capable of reading ourselves, or even better that you discuss the concerns raised by other panel members as we go through this. I like to see a little bit of exchange among panel members, even between panels, if someone raises some points that you think warrant rebuttal or warrant further development then please do so, feel free to do so, do what you wish with your time. If you want to just read through something I have already read, I do not think it is the best use of your time, but that is your right, it is your time.

STATEMENT OF HON. PETER A. DeFAZIO

Mr. DeFAZIO. Today, the Bonneville Power Administration Task Force considers the status of efforts to rebuild declining Columbia River salmon stocks.

The 1980 Northwest Power Act, written in good part by my predecessor Jim Weaver, for the first time placed anadromous fish on a par with power production. The Northwest Power Planning Council was formed and charged with developing a program "to protect, mitigate, and enhance fish and wildlife affected by the development, operation, and management" of the Columbia basin hydroelectric system, while "assuring the Pacific Northwest an adequate, efficient, economical and reliable power supply."

When you put those two charges together, I might say that Moses might have had an easier task ahead of him when he led the Jews out of Egypt. Those are seemingly contradictory charges, but I think we will make the case today that they are not, and we can achieve a high degree of compatibility.

The Administrator of the Bonneville Power Administration is supposed to act consistent with the Council's plan. Other federal agencies are required to do the same. The Act creates a dynamic tension between the Council and the federal agencies involved in this complex and tangled web of interests and jurisdictions. The tensions have been more than dynamic, as many have noticed, during the last month or two.

For those of us who have lived through the spotted owl disaster, the growing salmon crisis presents both disturbing parallels and reason to be optimistic. Turf battles, lack of coordination and a genuine unwillingness on the part of some players in the region to take the steps necessary to rebuild salmon stocks threaten to create another Endangered Species Act train wreck in the Pacific Northwest. I think everyone in this room will agree that that is not a desirable outcome.

If there is a bright spot, it is that we have not gotten there yet, though the clock is ticking.

We have a comprehensive salmon plan—developed within the region. It is the Northwest Power Planning Council's *Strategy for Salmon*. I have asked witnesses at this hearing to comment on the plan's strengths and weaknesses. Clearly one of the plan's strengths is that it asks all river users to contribute to salmon recovery. It aims at ecosystem-wide improvements in the areas of habitat, hydropower, hatcheries and harvests. One of its weaknesses—and a weakness of any salmon strategy, given the state of our knowledge—is the state of our knowledge. But we simply can-

not afford to study the salmon into extinction. We have to act prudently, but quickly.

Frankly, I do not feel qualified to be the judge of which measures are more or less appropriate or even whether this plan will be adequate to rebuild the Columbia basin's salmon stocks—that is why we have a Council and a host of Federal, State and tribal experts.

But to the extent that the Council's program provides a sufficient framework for salmon recovery efforts, my interest is in seeing that it is implemented in a timely and thorough fashion.

One common theme that emerges from my conversations is that there is not enough coordination between Federal, State, tribal and private entities in the Northwest. There are too many planning processes and jurisdictions, and no single arena in which all interests and all parties can take part.

Salmon recovery in the Columbia basin will require a degree of regional, national and international cooperation that is virtually unprecedented. I have asked witnesses at this hearing to comment on the existing institutions and their ability to implement a comprehensive salmon recovery strategy. I have asked for specific suggestions for improvements in the region's institutional arrangements that would better serve the Northwest and the Nation.

But the bottom line is that rebuilding the Columbia River's salmon runs is not discretionary. It is required by law. And in any case, it is in the Northwest's long-term economic and cultural interests to protect this precious resource.

We have not yet reached the degree of polarization and deadlock that characterizes the debate over forest management in the Northwest. I pray that we never will. It is my hope that this task force can help to encourage a more coordinated and thorough effort to rebuild the Columbia River's once magnificent salmon runs.

With that, we will move to the first witness, the Honorable Larry EchoHawk, Attorney General, State of Idaho.

STATEMENT OF LARRY ECHOHAWK, ATTORNEY GENERAL, STATE OF IDAHO

Mr. ECHOHAWK. Mr. Chairman, Congressman LaRocco, I appreciate the opportunity to present testimony on behalf of the State of Idaho at this hearing this morning.

Governor Andrus has submitted a nine-page written statement and I would like to add to that on behalf of the State some verbal comments this morning. I must say that I have got a time frame that I have to meet myself. I need to be at Boise State University at 8:30, but I will have the Governor's special assistant, Andy Brunnell, on natural resources issues and a special deputy from my office available to answer questions that the Congressmen may have.

The contemporary philosopher Will Durant once wrote that civilization is a stream with banks and that the story of civilization is what happened on the banks.

Unfortunately, the story being written on the banks of the Columbia River at the present is one of federal agency foot dragging and neglect of one of the Nation's most valuable resources, its magnificent salmon. The ending of the story is clear—extinction of

salmon runs—unless Congress takes bold action. This committee has the ability to assist in rewriting the ending of this story.

Recently we were told by the National Marine Fisheries Service that operation of the federal Columbia River Project System does not jeopardize the continued existence of Snake River salmon, even though by NMFS' own admission, the passage through the federal system will result in the death of up to 77 percent of the juvenile sockeye and spring and summer chinook, and up to 91 percent of juvenile fall chinook.

This type of analysis has convinced Idaho that the federal agencies are incapable of fulfilling their mandate to protect anadromous fish runs of the Columbia River. These agencies have agendas of their own—to maintain the status quo at the expense of the salmon. Their agendas run contrary to law.

BPA is a mismanaged, overstaffed and deeply entrenched member of the Northwest establishment that is only selectively following the laws that set forth its charter. It needs an administrative overhaul to reduce its size and it needs to be held accountable for perpetuating policies that run contrary to the Northwest Power Act and the values of the people who live in the region.

Congress, which established BPA, needs to scrutinize the performance of this agency and of the body it empowered to oversee it, the Northwest Power Planning Council.

As the marketing agency for the electricity produced by the dams, Bonneville has at its disposal the resources to truly help the salmon. Yet it consistently has used its resources to divert attention away from the mainstem survival problem and talk about harvest, habitat and hatcheries, areas over which BPA has no responsibility. Everyone knows that these activities are not what has brought the salmon to the brink of extinction. The record is clear that the federal dams are the primary cause of the problem.

Rather than acknowledge that mainstem survival is the cause of decline, Bonneville can be relied upon to advocate further study that takes years to yield results that will likely be as inconclusive as the present evidence. Smoke is substituted for meaningful action.

During final debate on the Northwest Power Act, Congressman John Dingell said that the Power Council would defer to state and federal agencies and not become a super fish and wildlife agency. Congressman Dingell's prediction did not hold true for BPA. Bonneville's fish and wildlife program now staffs 77 full-time people, exceeding the entire staff of the Power Council.

Then there are the large amounts of money spent on contracts with the University of Washington for development of a juvenile salmon passage model and with resources for the future on a cost-effectiveness study for restoring the salmon upstream of Bonneville Dam. We question the soundness of these actions because the work duplicates life-cycle modeling projects of the Power Council and the region's fishery, agencies and tribes. There is also a recently completed multi-volume Bonneville "Recovery Plan" developed by private consultants for the agency. This recovery plan was developed after the Power Council's *Strategy for Salmon*.

BPA, rather than accepting the conclusion that mainstem passage must be fixed, instead paid for a result oriented to justify the

protection of the status quo. Allowing BPA to be in charge of formulating federal anadromous fish policies in the Columbia River is like leaving the fox in charge of the hen house. Under BPA's leadership, the fox is eating between 70 and 90 percent of the juvenile salmon. This must be changed if there is any hope of saving the salmon.

BPA is a power marketing agency, not a fishery agency. The only purpose of its legion of fisheries biologists is to justify its power marketing strategy. This is not what Congress envisioned when BPA was created. BPA should be stripped of its fish and wildlife programs and the money saved should be given to the fishery agencies and tribes in a lump sum along with the responsibility to perform.

The growth in staffing in Bonneville's fish and wildlife program should be checked and even reversed, through a policy similar to the way federal block grants are provided to the States. Bonneville asserts that its current financial condition will prevent or delay full implementation of the Power Council's fish and wildlife program, but it is useful to consider Bonneville is quite willing to spend money to stalemate efforts to address mainstem passage.

Also recall that Bonneville refused to provide increased spill for juvenile fish until litigation with Idaho forced good faith bargaining.

Finally, Bonneville and its customers are very proficient at determining the cost to the federal power system to provide legally mandated fish protection and the ensuing rate impacts, yet they ignore the cost to the region of decades of depleted anadromous fish runs in the Columbia because of the mainstem hydrodams. It seems presumptuous to calculate a cost of foregone revenues for operations that conflicts with federal law. The BPA's shopworn billion dollars spent in the 1980s is no more than an estimate of foregone revenues based on a notion of opportunity cost that stretches credibility.

There has also been discussion of the adequacy of current institutions and agency authorities to manage the recovery of salmon runs. We believe the authorities are in place to provide the protection and recovery to the salmon. The Northwest Power Planning Council has had the authority for 13 years to provide a salmon recovery plan that the federal agencies must follow. The main problem has been that until recently the Council has been reluctant to assert its authority, and BPA and the Corps have openly resisted the Council's authority.

Idaho believes that the Council's *Strategy for Salmon*, with prompt and full implementation, can be the first step to reverse decades of neglect. It provides the underpinning for returning the Snake River salmon to fishable levels. Full implementation, in Idaho's opinion, goes beyond short-term measures for the salmon. Long-range planning must take hold or the strategy will become just another plan to save fish runs that was lost in agency intransigence.

The strength of the *Strategy for Salmon* is its regional consensus. Four States support rebuilding the salmon runs. The development of the plan was open and all interested parties were provided full opportunity to participate in the process. The plan addresses every

important aspect of the life cycle of the salmon. The plan recognizes that the critical issue we face is the survival of juvenile salmon and steelhead, as they attempt to migrate through the system of federal mainstem dams and slack water reservoirs to the ocean. We must improve that juvenile survival.

All other investments to protect habitat, improve management of hatcheries and impose further restrictions on harvests will be wasted if the mainstem survival issue is not successfully addressed. The salmon cannot withstand present man-caused mortality rates. This legendary species will continue their slide to extinction.

The chief weakness of the *Strategy* is the protracted period agencies claim is required to implement long-term measures to improve the migration habitat for the salmon. The region needs to take immediate steps in order to reduce the lead time for implementing drawdowns and other long-term measures. We believe modification of Lower Granite Dam to permit a one-pool drawdown is a critical first step toward a longer-term drawdown program. It is essential that we take immediate steps to reverse the radical transformation of the migration corridor from the river to a chain of slackwater lakes.

The Power Council's strategy endorses demonstration of a drawdown strategy to restore the migration habitat. The drawdown approach is not without its impact on river users or costs to modify the fish passage facilities at the dams. The Council also recognizes that impacts on river users must be accounted for and compensated.

Status quo opposition to the drawdown approach often cites the unproven nature of modifying these federal projects and operating them differently. Considering the success of barging salmon, and the species' present status, Idaho suggests that the drawdown approach compares rather favorably to the disproven management of present day. The region needs congressional oversight to spur action before it's too late for the salmon. Idaho seeks timely implementation of the Power Council's *Strategy for Salmon*. We also request this committee to consider continuing oversight of federal agencies in order to make sure that progress is actually being made. Without prodding like this, there will be no timely completion of actions in the *Strategy for Salmon*, and the federal agencies will push the accelerator on the actions they like and apply the brakes on the measures they do not care for.

Mr. Chairman, for the thousands of Idahoans who were unable to testify before this committee today, Idaho Rivers United and the Mid-Snake Group of the Sierra Club would like to present a message to the Congress.

We have a banner with a number of signatures that will be displayed for the Congressmen. Thank you very much.

Mr. DEFazio. Great. That is a beautiful banner.

[Applause.]

Mr. DEFazio. Thank you. Very nice banner. I would like to take that back with us to hang it on the Capitol—the other Capitol.

[Laughter.]

Mr. DEFazio. Okay, let us thank Mr. EchoHawk for staying right about to his time there, and sorry that he cannot stay for questions, but we thank him for his testimony.

[Prepared statement of Hon. Cecil D. Andrus follows:]



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GOVERNOR

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Testimony of

CECIL D. ANDRUS
Governor of Idaho

for the

BONNEVILLE POWER ADMINISTRATION TASK FORCE
of the COMMITTEE ON NATURAL RESOURCES

Gold Room of the Statehouse
Boise, Idaho

September 24, 1993
8:00 a.m.

Delivered by:

LARRY ECHOHAWK
Idaho Attorney General

Mr. Chairman, I appreciate the opportunity to present testimony on behalf of the state of Idaho at this hearing. At the outset let me extend our thanks to the Bonneville Power Administration Task Force of the U.S. House Committee of Natural Resources for holding a regional field hearing in Idaho.

The committee today is hearing testimony on an issue of tremendous significance for our region -- recovery of salmon stocks in the Columbia River basin. Protecting salmon populations is among the most important responsibilities and greatest failures of the Bonneville Power Administration and other federal agencies that have a role in the management of the Columbia River system.

Congressional oversight of the federal agencies in this region is long overdue, and we believe it needs to extend beyond the report this committee will issue. After all, the mandate of these agencies is to protect the anadromous fish runs of the Columbia River. It is an unfulfilled mandate.

Idaho is convinced these agencies have agendas of their own: to maintain the status quo at the expense of the salmon. Their agendas run contrary to the law.

BPA is a mismanaged, over-staffed and deeply entrenched member of the Northwest establishment that is only selectively following the laws that set forth its charter. It needs an administrative overhaul to reduce its size, and it needs to be held accountable for perpetuating policies that run contrary to the Northwest Power Act and the values of the people who live in the region.

Congress, which established BPA, needs to scrutinize the performance of this agency and of the body it empowered to oversee it -- the Northwest Power Planning Council.

Idaho is committed to the recovery of anadromous fish in the Snake River, the largest tributary of the Columbia. Idaho's goal, also held by Native American tribes of the region and recognized in federal law and in treaties, is the restoration of the fisheries, the economies, and the culture that once depended on fishable populations of anadromous fish in this vast basin.

We have reached a dire point in the Snake River basin. The anadromous fish stocks have declined so dramatically that one species, the Snake River coho, is

extinct, and three other anadromous species are listed under the Endangered Species Act. Preservation of the species, not mere restoration, is the immediate challenge.

Listing of the Snake River runs under the Endangered Species Act further complicates recovery because it involves additional federal agencies such as the National Marine Fisheries Service, which is charged with administering the act. In Idaho the two biggest landowners, the U.S. Forest Service and the Bureau of Land Management, must deal with Section Seven mandates to ensure that activities on their land do not jeopardize the continued existence of the salmon. This mandate has added new layers of review and has forced these agencies to apply their resources to reviews of proposed activities. The result has been delay in timber sales, grazing operations, and other activities.

Other states are facing the same complications, proving that the listing of the salmon is a regional issue, not just an issue in Idaho. The solution must be regional in scope, not just local.

Idaho's position is that, while it is all well and good to consider the impacts of these activities on the salmon, it takes attention away from the real problem -- the slaughter of juvenile salmon in the dams and the slack water reservoirs that create a chain of lakes stretching from the confluence of the Snake and Clearwater rivers in Idaho all the way to Bonneville Dam.

The road that leads to this hearing is one well-paved with plans to protect and restore the fisheries in the Snake and Columbia rivers. Unfortunately, plans and intentions do not produce results.

A basic premise in federal law is that anadromous fish will be protected. It can be found in the laws that authorized the Corps of Engineers' dams, funded the numerous hatcheries, created the Northwest Power Act's fish and wildlife provisions, and led to federal wilderness designations.

Thirteen years ago, the Northwest Power Act held the promise of anadromous fish restoration. A pending Endangered Species Act petition was shelved in deference to the Northwest Power Planning Council and new authorities for BPA. Today's Endangered Species Act listings in the Snake River, and the petition of upper

Columbia River summer chinook, clearly indicate a failure of the federal agencies to deliver results.

Take, for example, the case of the chinook salmon of the Middle Fork of the Salmon River in central Idaho. The 28,000-square-mile Middle Fork of the Salmon River back country, an area containing the most pristine salmon habitat in the lower 48 states, was designated as wilderness by Congress in 1980. Yet the local spring and summer chinook populations have declined at the same rate as Snake River populations that are exposed to spawning habitat degradation. Habitat is not the cause of decline.

While harvest remains a problem for fall chinook, the harvest of sockeye, spring and summer chinook was reduced or nearly eliminated by fishery managers in the 1970s. Still the decline continues. Harvest is not the cause of decline.

Hatcheries are often cited as a major problem. There are no hatcheries in the Middle Fork drainage for either resident or anadromous fish. This water is populated with only wild stocks. Hatcheries are not the issue.

The precarious state of the Middle Fork Salmon populations demonstrates that the primary cause of the decline is the federal hydropower projects. The problem is one of a regional scope that must be addressed accordingly. The Middle Fork runs are subject to juvenile mortality rate of 55-77 percent when migrating downstream through the FCRPS and over 30-40 percent when returning as adults.

POWER COUNCIL'S STRATEGY

Idaho believes that the Northwest Power Planning Council's Strategy for Salmon, with prompt and full implementation, can be the first step to reverse decades of neglect. It provides the underpinning for returning the Snake River salmon runs to fishable levels. Full implementation, in Idaho's opinion, goes beyond short-term measures for salmon. Long-range planning must take hold or the Strategy will become just another plan to save the fish runs that was lost to agency intransigence.

The strength of the Strategy for Salmon is its regional consensus; four states were able to work out a plan that, if fully implemented, will lead to rebuilding the salmon runs. The development of the plan was open and all interested parties were

provided full opportunity to participate in the process. The plan addresses every important aspect of the life cycle of the salmon.

The plan recognizes that the critical issue we face is the survival of juvenile salmon and steelhead as they attempt to migrate through the system of federal mainstem dams and slackwater reservoirs to the ocean. We must improve juvenile survival.

All other investments to protect habitat, improve management of hatcheries and impose further constraints on harvest will be wasted if the mainstem survival issue is not successfully addressed. The salmon cannot withstand the present man-caused mortality rates. This legendary species will continue their slide to extinction.

The chief weakness of the Strategy is the protracted period agencies claim is required to implement long-term measures to improve the migration habitat of the salmon. The region needs to take immediate steps in order to reduce the lead time for implementing drawdowns and other long-term measures. We believe modification of the Lower Granite Dam to permit a one-pool drawdown is a critical first step toward a longer term drawdown program.

It is essential that we take immediate steps to reverse the radical transformation of the migration corridor from a river to a chain of slackwater lakes.

The Power Council's Strategy endorses demonstration of a drawdown strategy to restore the migration habitat. The drawdown approach is not without its impacts on river users or costs to modify the fish passage facilities at the dams. The council also recognizes that impacts on river users must be accounted for and compensated.

Status-quo opposition to the drawdown approach often cites the "unproven" nature of modifying these federal projects and operating them differently. Considering the success of barging of salmon, and the species' present status, Idaho suggests that the drawdown approach compares rather favorably to the disproven management of present day.

EFFICIENCY OF WATER USE

Of special interest to Idaho are the parts of the Strategy for Salmon that deal with water management, specifically water conservation and regulation of water

diversions.

Cooperation among state and federal entities is improving salmon habitat conditions. Idaho Department of Water Resources is working with the various governmental entities to restore stream flows to dewatered reaches through water right transfers and more efficient delivery. The department has also agreed to limit diversions, by field regulation, to authorized quantities when necessary to insure adequate passage of the salmon.

Understanding that water conservation can help improve stream flows for power production and salmon, Governor Andrus appointed a water conservation committee to review existing laws and programs and hydrological issues associated with water conservation to determine what additional potential exists in Idaho.

Significant gains in irrigation efficiency have already been made. In the eastern Snake River plain of Idaho, conversions from flood to sprinkler irrigation have jumped from 16 percent of irrigated acreage in 1970 to 54 percent in 1990. That is a penetration rate that would make utilities interested in energy conservation envious.

There are several substantive issues that must be addressed to determine how water conservation relates to improving stream flows for power production and salmon. While there are benefits to having additional water in the reservoir system available thorough water banks to improve stream flows, the fact is the amount of water that can be "saved" from conservation cannot be enough to mitigate for the impact of the mainstem dams.

Secondly, the fact is that water not already consumed is, in reality, saved. While 16 million acre feet of surface water in the Snake River basin is diverted for irrigation, only six million acre feet is consumed by the crops or evaporates. The other 10 million acre feet remains in the river system.

Increased irrigation efficiency and groundwater use in the past 40 years has actually decreased the spring flows at Idaho's Thousand Springs, a major tributary to the Snake River. Water conservation efforts that lead to lower water diversion may undermine base flows from the springs, especially during critical winter and summer months that are essential to listed Snake River snail species and for power production

during peak demand periods.

Idaho is trying to tackle this interrelationship of surface and groundwater through recently proposed rule-making on the conjunctive use of ground and surface water.

Then there are the myriad legal issues associated with changing the timing of stream flows and diversions. Impacts to junior water rights and other third party impacts will have to be addressed.

As you can see, there are many complex issues that must be dealt with in order to determine what role water conservation has in salmon recovery. Idaho is leading the way in the effort and is encouraging Oregon and Washington to undertake similar reviews of their water management practices. Except in few isolated stream reaches where more efficient use could meaningfully restore habitat, the bottom line is that there is insufficient water to satisfy the flow needs recommended by the region's fishery agencies and tribes for salmon migration through the federal hydrosystem.

BPA NEEDS OVERSIGHT

The region needs Congressional oversight to spur action before it's too late for the salmon. Idaho seeks timely implementation of the Power Council's Strategy for Salmon.

We also request this Committee consider continuing oversight of the federal agencies in order to make sure that progress is being made.

In addition, the council can and must do more -- and is beginning to do more -- to encourage, cajole or compel BPA, the Corps and the Bureau of Reclamation to implement its program.

Idaho supports the council's recent steps to push quicker implementation -- asking for Congressional directives for progress reports, intervening in the Federal Energy Regulatory Commission review of BPA's rate increase, and making direct inquiry of Bonneville's funding plans for the Fish and Wildlife Program. Without prodding like this, there will be no timely completion of actions in the Strategy for Salmon, and federal agencies will push the accelerator on the actions they like, and apply the brakes on the measures they do not care for.

Because of the complex life cycle of the salmon, and the many of agencies that are supposed to be involved in their protection, there is ample opportunity to avoid responsibility.

We have long been concerned about Bonneville's actions -- or inaction -- as it affects salmon recovery. While Bonneville does not own the dams, in effect it drives the river system.

As the marketing agency for the electricity produced by the dams, Bonneville also has at its disposal the resources to truly help the salmon. For too long, however, it has used its resources to divert attention away from the mainstem survival problem and talk about harvest, habitat and hatcheries -- areas over which BPA has no responsibility. When it does come to mainstem survival issues, Bonneville can be relied upon to advocate further study that takes years to yield results that will likely be as inconclusive as the present evidence. Smoke is substituted for meaningful action.

During final debate on the Northwest Power Act, Congressman John Dingell said the Power Council would defer to state and federal agencies and not become a super fish and wildlife agency. Congressman Dingell's prediction did not hold true for BPA. Bonneville's Fish and Wildlife Program staff now employs 77 full time people, exceeding the entire staff of the Power Council.

Then there are the large amounts of money spent on contracts with the University of Washington for development of a juvenile salmon passage model, and with Resources for the Future on a cost-effectiveness study for restoring the salmon upstream of Bonneville Dam.

We question the soundness of these actions because the work duplicates life cycle modeling projects of the Power Council and the region's fishery agencies and tribes.

There is also a recently completed nine-volume Bonneville "Recovery Plan" developed by private consultants for the agency. This recovery plan was developed after the Power Council's Strategy for Salmon. It would be useful to know how much money was spent on an effort that appears to duplicate work already completed by the Power Council and soon to be completed by the NMFS Recovery Team.

We believe there are gains to be made in streamlined fish and wildlife staffing at Bonneville. We support the notion of shifting the funding of fish and wildlife program activities to the fishery agencies and tribes in a lump sum along with the responsibility to perform. The growth in staffing in Bonneville's fish and wildlife program staff could be checked, perhaps even reversed, through a policy similar to the way federal block grants are provided to states.

Bonneville asserts that its current financial condition will prevent or delay full implementation of the Power Council's Fish and Wildlife Program. But it is useful to consider Bonneville is quite willing to spend if such projects can influence stalemate on the Power Council. Also recall that Bonneville refused to provide increased spill for juvenile fish until litigation with Idaho forced good faith bargaining.

Finally, Bonneville and its customers are very proficient at determining the costs to the federal power system to provide legally-mandated protection of fish and wildlife and the ensuing rate impacts. Yet they ignore the cost to the region of decades of depleted anadromous fish runs in the Columbia because of mainstem hydro dams. It seems presumptuous to calculate a cost of foregone revenues for operations that conflict with federal law. The BPA's shopworn "billion dollars" spent in the 1980s is no more than an estimate of foregone revenues based on a notion of "opportunity cost" that stretches credibility.

FEDERAL AGENCY COORDINATION

Along with the proposals to change the method of funding activities under the Power Council's Fish and Wildlife Program, there has also been discussion of the adequacy of current institutions and agency authorities to manage the recovery of the salmon runs.

The listing of the Snake River runs under the Endangered Species Act adds additional complication to the issue: last spring, federal agencies used their mandates under the Endangered Species Act to ignore Power Council, state and tribal input on managing the federal projects during the salmon migration season -- a practice in which states and tribes have been involved for over a decade.

We believe the authorities are in place to provide the protection and recovery of

the salmon. The Northwest Power Planning Council has had the authority for 13 years to provide a salmon recovery plan that the federal agencies must follow. The main problem has been that until recently the council has been reluctant to assert its authority.

Since the Corps of Engineers and the Bureau of Reclamation are owners of the water projects in the basin, and the Corps in particular has shown in the past to be non-responsive if not recalcitrant to Power Council salmon protection actions, clearer council authority over these agencies is necessary.

Idaho believes Congressional interest in the inner workings of the Bonneville Power Administration has created a new atmosphere that will command greater accountability of an organization that for too long has negligently met only part of its charter. Bonneville needs to become part of the solution, not remain part of the problem.

--the end--

PANEL CONSISTING OF RANDALL W. HARDY, ADMINISTRATOR, BONNEVILLE POWER ADMINISTRATION, AND STAN GRACE, CHAIRMAN, NORTHWEST POWER PLANNING COUNCIL, ACCOMPANIED BY JAY WEBB, IDAHO COUNCIL MEMBER

Mr. DEFazio. We will now move on to panel two; Mr. Randy Hardy, Administrator, Bonneville Power Administration; and Mr. Stan Grace, Chairman, Northwest Power Planning Council.

I would invite Jay Webb, who is one of the Idaho Council members, to sit with Mr. Grace and be available to answer questions if they are directed to him. So with that, I would first recognize Mr. Hardy.

STATEMENT OF RANDALL W. HARDY

Mr. HARDY. Thank you, Mr. Chairman, for this opportunity to testify today in the third of the series of hearings that you are holding on Bonneville oversight.

I would like to describe our perspective on the salmon issue—what we are trying to do, what some of the successes have been, and some of the failures or frustrations we have had.

I direct the task force members' attention to the two charts on the left. This offers some perspective of what our expenditures have been for salmon over the last few years. The Attorney General referred to smoke rather than substance. We are spending \$300 million a year on salmon, that has doubled in the last 2 years, up from \$150 million in 1991. As a result of Endangered Species Act measures, we have gone from \$150 million of annual expenditures to \$300 million. That may or may not be enough, but I do not think it is smoke. It is a substantial expenditure of money, it is 12 percent of our entire budget, and the frustration we have is that it is not yet clear whether it is producing any results.

This year we have also provided, pursuant to the Endangered Species Act and consultations with National Marine Fisheries Service, some 10 million acre-feet of water in the form of flows, both in the Snake River and in the Columbia. That is about 10 percent of the annual runoff of the entire Columbia system which is being used to flush juvenile salmon downstream so that they get to the ocean more quickly and assist in their genetic maturation process.

The way this has evolved over the last few years is like this: Since the early 1980s, we have had the Northwest Power Planning Council's water budget and various Council fish program activities directed primarily towards a goal of doubling overall run size. Until 1991, our annual investment including expenditures we made for hatcheries to the Corps and the Bureau and for other operations and maintenance expenses for the Corps and the Bureau relative to fish, was about \$150 million. In the last 2 years, we have had the Council's first phase, phase two and then phase three plans, along with additional requirements in 1992 and 1993 specifically for flows and spill that we implemented as a result of ongoing consultations with the National Marine Fisheries Service. That is what gets you to the \$300 million. The chart on the right shows a more detailed breakdown of how that occurs.

In addition to those programs, we have launched a squawfish management program to reduce predation in the Columbia, and a number of activities in the research area and in other areas, all ad-

dressed towards trying to improve salmon mortality and improve the number of returning adults.

I think the biggest difficulty we currently have is that we do not know what results, if any, are being produced. We also have a need for better prioritization on the money we are spending. Three hundred million dollars a year is a substantial expenditure and it, is spread over a number of activities. The focus on results and the ability to produce results is the biggest theme that I would try to strike with you today.

Finally, we have the competitive pressures that Bonneville is under. You will be holding an all-day hearing tomorrow on just that topic. We face a dramatically changing utility marketplace that is being deregulated and is going to go through a degree of structural change in the next 10 years, not unlike the changes the airlines and the phone companies and the gas companies have been through in the last 10 years. Prices are coming down dramatically, and it is not clear to us just how we are going to maneuver through that changing environment with the kind of pressure that it creates on our rates and our costs.

On Monday of this week, I announced that we were going to lay off 15 percent of the Bonneville work force. We are going through a fair amount of pain associated with trying to get ourselves more competitive.

The consequence for fisheries expenditures is this—we can probably sustain the \$300 million expenditure level that we have now, if we can set some priorities and get some results. If we get ratcheted to \$400 million or \$500 million over the next 2–3 years, I do not think we can financially sustain that level, regardless of what the biologic justification may be. We simply will have customers that will leave our system and buy their power elsewhere, or fold up altogether. This is different from just keeping rates low. This is a matter of fundamental competitiveness and where you are able to collect money. And when customers can go out and build a combustion turbine for close to the price they project your rates are going to be in 5–8 years, that puts you at a fundamental competitive disadvantage.

The challenge that we have, besides trying to set some priorities in the amount of money we are currently spending, is how to get the fisheries community, the resource agencies, the tribes, and others invested—not just in biological success, but in our own financial success, so we can assure continued stable funding for salmon recovery.

We need to explore some methods for “incentivizing” fisheries agencies to do that. Bonneville is examining these now. They might involve such things as providing a base level of funding with additional funding available in good water years, or programs savings, or monetary savings, from other programs being redirected towards additional fishery funding. Or, if we built our financial reserves past a certain level, some portion of that money could be used, not just for rate relief, but also for additional fish funding.

Those are some of the concepts that could enable us to get to the biologic results we need, but also take account of the financial circumstances that we have, so we do not go through this ratcheting

up and down of expenditures whenever we have a bad water year, like the type of thing that has happened this year.

You asked us to comment on the strengths and weaknesses of the Council's plan. It's strengths are pretty clear: One, it is a comprehensive plan; and second, it is an excellent representation of the collective interests of the four Northwest States. I think that is of tremendous value.

I would say its weaknesses are that we need stronger monitoring and evaluation, and we need more specific performance standards as part of the plan and as part of Bonneville's activities in implementing the plan, so we can get more of a focus on results. We need to move away from money being the measure of effectiveness to biologic results being the measure of effectiveness of how successful our fisheries programs are.

We have a number of challenges ahead, some of which the task force, and you, Mr. Chairman, have already identified in your opening remarks, but I would lay them out as these:

First, we need clear biological goals and implementation priorities and we need to be able to measure the results.

Second, we need to have a greater emphasis on monitoring and evaluation, and when something is proven not to work, we get rid of that and try something that does, rather than just continuing funding ad infinitum.

Third, we need to be able to reconcile the mandates of the Council's "Recovery Plan" with the Endangered Species Act process. We are struggling to do that right now. We, being the four federal agencies that are principally involved with the recovery process and the Council. There are some forums to do that, and they need to be better coordinated.

Fourth, we desperately need good flow survival data. That is one of the key aspects of analysis that has yet to be done. It is now finally under way. After 10 years of trying, we finally have some of that started, but it is going to take at least one breed cycle before we will get reliable data.

Fifth, we need to find a better way to balance the conflicting interests that we have. The Council's plan, with its emphasis on doubling overall run size; the recovery plan that the National Marine Fisheries Service is developing which will focus on specific endangered salmon stocks; the multiple uses of the river itself, be they irrigation, recreation, power, navigation, or fisheries recovery. We still have not mastered that very well and that is a large part of our problem. And lastly, the increasingly developing conflicting ESA mandates—resident fish versus anadromous fish versus potentially some forms of wildlife are requiring us, on one hand, to provide flows and at the same time keep the reservoir high. We have a case in point, probably with the white sturgeon, that presents us with some of those very challenges.

Finally, we need to focus on some of the harvest alternatives and particularly renegotiation of the U.S./Canada Pacific Salmon Treaty so that we make sure that the gains we get by in-river flows or other measures are not lost to the offshore fishery.

I would conclude, Mr. Chairman, by making three points: We are spending, as I said, \$300 million a year, that is 12 percent of our budget, and we face I think some real limitations financially on

how much more we can spend and not seriously jeopardize our competitiveness.

Second, we need to focus on clear results. We need to measure program effectiveness on biologic results and not the amount of money spent.

Third and finally, we need to find some incentivization mechanism so that we have got everybody invested in our financial success as the key implementer of these programs. If that does not happen, then we put the fish as well as other Bonneville programs at even greater risk.

Thank you, Mr. Chairman.

Mr. DEFAZIO. I thank the Administrator, and I thank him for staying within his allotted time.

Mr. Chairman.

[Prepared statement of Mr. Hardy and attachments follow:]

**STATEMENT OF RANDALL W. HARDY
BONNEVILLE POWER ADMINISTRATION
UNITED STATES DEPARTMENT OF ENERGY**

**BEFORE THE
COMMITTEE ON NATURAL RESOURCES
TASK FORCE ON THE BONNEVILLE POWER ADMINISTRATION
U.S. HOUSE OF REPRESENTATIVES
SEPTEMBER 24, 1993
BOISE, IDAHO**

Statement of Randall W. Hardy, Administrator
Bonneville Power Administration
September 24, 1993

Introduction

Chairman DeFazio, it is again my pleasure to appear before the Bonneville Power Administration Task Force. Today I come prepared to reaffirm Bonneville's commitment to the Northwest's environment -- particularly our commitment to protecting, mitigating and enhancing the Columbia River Basin's fisheries resource.

I first want to assure you and the other Task Force members that Bonneville is firmly committed to aggressive support for rebuilding fish and wildlife affected by the Federal hydroelectric power system. We are and will continue to work cooperatively with other Federal and state natural resource agencies, the Northwest Power Planning Council, Indian Tribes, our customers, and regional interest groups.

Today we will discuss whether appropriate measures are being proposed and undertaken to protect, mitigate and enhance salmon populations, and consider whether the existing institutions and institutional arrangements implementing these measures are adequate. My testimony focuses on Bonneville's critical role in the difficult task of restoring Columbia River Basin native fish runs. I will review the significant actions we have taken, investments we have made thus far, and more specifically, the financial limitations we are up against. As requested in your invitation, I will also provide comments on the Northwest Power Planning Council's Strategy for Salmon. In closing, I will offer our views on the challenges ahead and potential improvements to ensure better regional coordination.

Accomplishments to Date

Over the past 13 years, Bonneville's rate payers have invested what is now approaching \$2.0 billion through direct expenditures and foregone revenues to protect and enhance Columbia River Basin fish and wildlife. As noted on the attached chart, BPA's Fish and Wildlife Investments (Attachment 1), significant increases in Bonneville investments have occurred in recent years. The increase coincides with the recent listings of several stocks of Columbia River salmon under the Federal Endangered Species Act.

Recently, the region has adopted a comprehensive, biologically-based plan to address the problems causing the decline in the Basin's salmon stocks. Bonneville and other Federal agencies are working, and will continue to work, cooperatively to accomplish implementation of the Strategy for Salmon recently adopted by the Northwest Power Planning Council.

Since Senator Hatfield held the first hearing in June of 1990 on the threat to Columbia Basin salmon, Bonneville has fully supported the National Marine Fisheries Service (Fisheries Service) development of a biologically sound, comprehensive plan for the recovery of listed species. Bonneville, the U.S. Army Corps of Engineers (Corps), and the Bureau of Reclamation (Bureau), in consultation with the Fisheries Service, developed a set of actions for hydrosystem operations in 1993 (principally based on the Council's "Strategy for Salmon") which resulted in a determination that there would be no jeopardy to the continued existence of the species.

We are working effectively with the Fisheries Service and other agencies to ensure that factors affecting all stages of the salmon life cycle are being addressed. We also recognize, respect, and support the roles and responsibilities of other entities, including

Indian Tribes and state fish and wildlife agencies pursuing recovery efforts. As a result of these combined effects, we believe the region is working together in a positive and constructive way.

We would like to take this opportunity to briefly discuss some of the major actions we have taken recently.

Despite 1992 and 1993 being among the worst water years ever, we saw a dramatic increase in volumes of water made available for salmon migration. Since 1991, increases in volumes released for salmon have been made from both the upper Columbia and Snake River reservoirs. In 1991, almost 3.5 million acre-feet was provided from the upper Columbia. In 1992 and 1993, that was increased to about 6.5 and 7.5 million acre-feet, respectively. From Snake River reservoirs, about 2.8 million acre-feet was provided in 1993--up from 1.0 to 1.5 in 1991 and 1992. Thus in 1993, over 10 million acre-feet of water was provided for fish flow augmentation.

From April 15 to June 15, 1993, Dworshak Reservoir provided about 1 million acre-feet of flow augmentation, and through the end of August, an additional 1.2 million acre-feet was provided from Dworshak. Bonneville also pursued the acquisition of water from the upper Snake Basin irrigation reservoirs, as called for in the Council's Program. This upper Snake Basin acquisition in 1993 amounted to 100,000 acre-feet. Bonneville expended almost \$600,000 for the acquisition of the water and may receive of up to one third of that as a refund later. The Bureau of Reclamation contributed 325,000 acre-feet from uncontracted and discretionary storage out of their upper Snake Basin reservoirs. The water from upper snake basin reservoirs, a total of 425,000 acre-feet, was reshaped by releases from Idaho Power Company's Brownlee Project from mid-July through August at a cost to Bonneville of \$1 to \$2 million dollars. In addition, Idaho Power Company added

100,000 acre-feet of their own water, in August. The combined effect in the lower Columbia River of the reservoir releases more than doubled from 1991 to 1993. The totals being about 4.5 million, 8.0 million, and 10.5 million acre-feet respectively in 1991, 1992, and 1993.

Special flows from Libby dam were made available for two weeks in June in a test to determine if the Kootenai River white sturgeon would spawn. While final test results are still being evaluated, the extra 400,000 acre-feet of water made available for the test did result in two eggs being recovered by researchers from the Idaho Department of Fish and Game and the Kootenai Tribe of Idaho. The test demonstrated that spawning did occur and the information gathered will be used in future operations.

Other reservoir operations were also modified to improve flows. The four lower Snake River reservoirs (Lower Granite, Little Goose, Lower Monumental, Ice Harbor) remain drawn down to within 1 foot of minimum operating pool where they have been since April 1 and are expected to remain through October. The John Day Reservoir was also drawn down to near minimum irrigation pool.

Additional juvenile migration enhancement measures included spill at Ice Harbor, John Day (per the 1993 Fisheries Service's Biological Opinion), The Dalles, and Bonneville dams. At Ice Harbor, spill was increased above levels called for under the Fish Spill Memorandum of Agreement of 1989 and was extended through August. We also developed guidelines helping to ensure that any fish passing through the turbines would face as little mortality as possible.

In total, the operations for 1993, including flows, met or exceeded both the standards of the Fisheries Service Biological Opinion and the Council's Strategy for Salmon.

Other 1993 actions include the continued success of the squawfish program, which eliminated about 120,000 predator fish. When combined with the 1991 and 1992 catch, this program accounts for removal of over a half million salmon predators or 10 to 12 percent of the squawfish population. Biologists believe that reducing the squawfish numbers by 10 to 20 percent could reduce the losses of juvenile salmon to predation by as much as 50 percent.

Bonneville also continued funding law enforcement efforts within the Columbia Basin to aid in the reduction of illegal fishing activities. This intergovernmental effort involved law enforcement agencies in Oregon, Washington, Idaho, and the Columbia River Intertribal Fish Commission. The program doubled the number of law enforcement officers assigned to these duties in the Basin. In addition to law enforcement, this program is intended to increase the public's knowledge about the Endangered Species Act and fishery management practices of listed stocks.

Fish and Wildlife Investments

Successfully meeting the challenges of salmon recovery will require bold action, unprecedented regional partnerships, and considerable investments.

Bonneville's annual fish and wildlife investments prior to 1992 amounted to about \$150 million. The agency's costs for fish and wildlife investments are now over \$300 million per year, including both Endangered Species Act and non-Endangered Species Act related activities. These fish related expenses now account for roughly 12 percent of Bonneville's entire budget, which includes the net cost associated with

the residential exchange program*. The Bonneville budget for the fish and wildlife program may be criticized on the margins, but the overall trend certainly reflects the region's increasing commitment to protect and enhance fish and wildlife. The bar chart attached to my testimony (Attachment 1) displays the extent of that commitment and how it has dramatically increased over the last two years.

I would like to clarify what the \$300 million in annual investments includes. About \$57 million are for expenses to implement the Northwest Power Planning Council's Fish and Wildlife Program. The \$57 million in expense, when coupled with \$25.5 million in capital expenditures, equates to Bonneville's fiscal year 1993 fish and wildlife budget of \$82.5 million. Of the \$300 million, about \$149 million is for power purchases and foregone revenues for fish enhancement of which almost \$110 million are the result of actions taken under the Endangered Species Act. About \$44 million are identified for reimbursement of operations and maintenance expenses incurred by other Federal agencies--the Corps of Engineers, the Bureau of Reclamation and the U.S. Fish and Wildlife Service--for salmon recovery operations such as hatcheries and barging fish. Another \$55 million in fixed expenses are identified for repayment of capital investments and interest for hatcheries, and fish ladders and screens at the dams. These fixed expenses are based on total completed capital investments through Fiscal Year (FY) 1992, of about \$536 million for the Corps of Engineers, and about \$76 million for Bonneville, totaling \$612 million in investments.

We note that from FY 1991 through FY 1993, costs for power purchases and foregone revenues for fish mitigation increased dramatically--from about \$50 million in 1991 to

* The Residential Exchange program was established under the Pacific Northwest Electric Power Planning and Conservation Act of 1980 to reduce the disparity in electric rates paid by residential and small farm customers of the region's utilities by having Bonneville "exchange" its relatively low cost power with Northwest utilities that have higher power.

about \$150 million in 1993. This increase is largely associated with increases in river flows for fish migration within the Columbia River Basin.

Annual investments increased by almost \$150 million between FY 1991 and FY 1993. We do not expect costs to continue to escalate as they have over the past 10 years, rising from an expense of about \$40 million a year in FY 1983 to an expense of over \$300 million a year in FY 1993. However, if costs continue to escalate, the necessary rate increases could jeopardize the agency's ability to continue to fund this critical program. Additional rate increases could also result in a loss of Bonneville customers and subsequent revenues. This, in turn, could threaten Bonneville's financial well being, including our annual Treasury payment. Should these events occur, it could well lead to reduced funding for fish and wildlife.

Bonneville's Competitiveness Project, an effort through which we are striving to become more results-oriented, cost-conscious, customer-focused, and market-driven, is moving us to rethink how we accomplish our fish and wildlife responsibilities. Increasing our cost effectiveness in meeting these responsibilities will help sustain our business advantage and our financial viability. We see the results of the Competitiveness Project as helping Bonneville achieve both long-term rate stability, and long-term stability in fish and wildlife program funding.

Our customers as well as the State and Federal fish and wildlife agencies and Tribes, the Council, and other interested parties, need to be invested in both Bonneville's financial and biological success. We want to create a system that provides incentives to help guide the Bonneville investment toward measurable results targeted at weak stocks and increasing the number of adult salmon returning back to the Columbia River. Moreover, Bonneville is interested in examining budgeting options, including financial incentives, which reward

results and increase funding for fish and wildlife as Bonneville's competitive position improves. We want to develop a structure which would lead fish and wildlife advocates to want Bonneville to be successful in its revenue producing programs. This option and others could be discussed as part of the development of Bonneville's 10-year fish and wildlife implementation plan.

Bonneville's Fish and Wildlife Program

I want to briefly review that portion of Bonneville's annual fish and wildlife investment which is used primarily to implement the Council's Fish and Wildlife Program. As you are aware, Mr. Chairman, as part of the strategy to cope with our financial stress, we reduced or limited the growth of the budgets for all of Bonneville's programs from the levels adopted in October 1992 at the end of Programs in Perspectives. The total reductions for the FY 1994 - 1995 rate period amounted to \$268 million. The fish and wildlife program budget reductions were in the mid-range of all our programs on a percentage basis, amounting to \$28 million for the two year period. Even with these reductions, in July, Bonneville announced a 15.7 percent rate increase for FYs 1994 and 1995. Fish and wildlife investments account for 4 percentage points of that increase, drought accounted for 6 percent, administrative costs accounted for 2 percent and obtaining new resources accounted for 3 percent.

In spite of the recent budget reductions, Bonneville's revised fish and wildlife direct expenditures for FYs 1994 and 1995 will remain about the same as in FY 1993, as is illustrated in Chart 2, Fish and Wildlife Program (attached). This chart forecasts increases for the budget in FYs 1996 and 1997. In total, about \$420 million is planned or forecasted in the four-year period from FY 1994 through 1997. We believe this is a substantial and notable commitment to implement the Council's Fish and Wildlife Program.

Bonneville received criticism from a number of entities in the region when the growth of the FY 1994 budget was restrained by about \$15 million over the level adopted at the end of Programs in Perspective. The reduction was part of a Bonneville-wide budget review in which all programs were cut—we did not gut any of our programs.

The action we took to limit the rate of growth in this program over the FY 1994 -- FY 1995 rate period, as well as in the other Bonneville programs, was necessary to limit the rate increase for our customers. Some argue that the rate increase should have been higher. I do not agree. I believe Bonneville's competitive position and impact on the economic health of the region dictated strong action. The relatively small reduction of \$15 million in the FY 1994 fish and wildlife program budget, compared to the \$300 million annual fish and wildlife investments will not impair any essential effort to rebuild fish and wildlife populations affected by the hydroelectric system. It is our hope, however, the recognition of the need to maintain Bonneville's competitiveness will encourage efficiency and the establishment of priorities for all of our programs, including fish and wildlife.

Northwest Power Planning Council's Strategy

Mr. Chairman, in your invitation you asked that we offer comments on the Council's Program.

The Council, representing the Northwest Governors, has crafted a comprehensive, regional Fish and Wildlife Program. I will again reiterate that Bonneville is committed to full implementation of the Council's Fish and Wildlife Program. However, in response to recent extreme financial stress, we must carefully schedule and sequence measures described in the Council's Program, and balance their pace of implementation with Bonneville's other responsibilities. In making those decisions, we have called on the Council and others to help us assure that no vital, time-urgent measure is delayed.

The Council is in the process of incorporating the *Strategy for Salmon* and Phase IV revisions to the resident fish and wildlife sections of the Program, into the amended 1993 Columbia Basin Fish and Wildlife Program. In our comments on the Strategy for Salmon

and Phase IV, Bonneville has called on the Council to prioritize all measures that are added to the Program through the 1993 amendment process and drop older measures no longer applicable. In preparing to implement projects for FY 1994, we note that fully 46 percent of the budget is committed to projects that started before FY 1991.

Through joint efforts with Council staff, we believe that virtually all of the 117 Salmon Strategy measures assigned to BPA are currently planned for funding. In the few remaining areas where questions remain we are working cooperatively with the Council and other entities to address funding needs. It is our expectation that the total additional funding requirement for all measures can be accommodated for less than \$2 million. Under our current circumstances of financial stress, with rates increasing by 15.7 percent, Bonneville must carefully schedule and sequence the measures called for in the Council's Program. We also call on the Council to be cognizant of the impact of Bonneville's rates on the region's economy as it makes decisions on the Phase IV Amendments. We will continue to work closely with the Council, State and Federal fish and wildlife agencies, Tribes, and other interested parties in the region through the Annual Implementation Planning Process to adopt a long-term, systematic implementation plan for the Program.

Challenges Ahead

Bonneville is committed to the regional effort to rebuild Columbia River fish stocks in a manner consistent with sound scientific principles. The species recovery challenge requires strengthening old and forging new regional partnerships. We must work together and take prudent, biologically sound risks to recover weak stocks.

Our progress over the coming years will require significant effort on several fronts, including:

- Establish clear, biological goals, implementation priorities, and measurable results. We believe we can effectively work with the Council and others to accomplish these objectives. The development of a 10-year fish and wildlife implementation plan will aid us greatly in reaching these objectives.

Bonneville's 10-year fish and wildlife implementation plan will provide the Agency and the region the opportunity to identify priorities for funding, describe the results we expect from our investments, and move forward with monitoring and evaluation activities. The 10-year plan will rely on guidance found in the Council's 1993 Columbia River Basin Fish and Wildlife Program. Additionally, we envision the 10-year plan as a critical element in Bonneville's Competitiveness Project and to our overall efforts at restoring salmon. The plan will serve as Bonneville's business plan for the fish and wildlife program.

- Emphasize evaluation as well as monitoring as called for in adaptive management. Adaptive management is a technique that treats the management of programs as experiments and relies on monitoring and evaluation to give feedback on a recurring basis to managers. We must perform a better job of evaluation in order to determine what works and what does not, and to improve effectiveness of future actions.
- Determine how the Fisheries Service Recovery Plan will mesh with the Council's 1993 Program, including the *Strategy for Salmon*. We support the development of a biologically sound, comprehensive plan for the recovery of listed species. The Recovery Team has been diligently working on such a plan to save Snake River Sockeye and Chinook. We look forward to issuance of the recovery plan, and how it can mesh with the Council's Program.

- We need the best scientific data available to understand the relationships between flow and smolt survival. Fisheries biologists acknowledge that flows for fish migration are important and represent the fastest growing fish and wildlife cost to Bonneville. Decisions critical to smolt survival and river operations have been made based on scientific studies that are dated or lacking in precision. To fill this important gap in current research, Bonneville is in the first year of a multi-year research project with the Fisheries Service that will look at smolt survival in relationship to a number of factors such as water temperature, turbidity, as well as flows. We must do what is right for fish and be guided in our decisions on river operations by the best science fisheries biology can produce.
- As one of the managers responsible for the operations of the Columbia River hydrosystem, I am further challenged by my responsibilities to balance the requirements associated with several policy areas. The first is implementation of the Council Program. The second is avoiding jeopardy to listed species consistent with the Biological Opinion of listing agencies. Third is responding to the interests of the multiple users of the Columbia River Basin including the State of Idaho's concerns over draw down of the Snake River dams, and the State of Montana's concerns over our use of reservoirs in Montana for downstream benefits. Finally is supporting potentially conflicting recovery plans for different species. For example, the flow requirements for the Kootenai River white sturgeon may differ from those for Snake River salmon. These four areas emphasize the need to manage the Columbia River Basin as an entire ecosystem, which recognizes the needs of the natural resources within the established and authorized purposes leading to development of the Columbia's dams--recreation, irrigation, navigation, flood control, and power production.

- The recent petition to list the wild coastal coho salmon (which includes Lower Columbia wild coho) under the Endangered Species Act lists over-harvest, degraded habitat, water withdrawals, poor hatchery practices, and regulatory indifferences as causes for the salmon's decline. This petition should help us to better understand what other factors, besides dams, are affecting Columbia Basin salmon and what is causing population declines. In addition to the coastal coho, other species experiencing a declining trend include Pacific salmon, steelhead, and sea-run cutthroat stocks from California to Washington. Reversing these trends will depend on balanced solutions and recovery plans for all salmon species that address ecosystem problems facing fish up and down the West Coast.
- Another opportunity to seek actions that can aid in the recovery involves renegotiation of the harvest regimes in the U.S. - Canada Pacific Salmon Treaty. Ocean harvest practices have a direct impact on salmon recovery efforts in the Columbia Basin. Under current harvest regimes, over 76 percent of the ocean harvest of threatened Snake River fall Chinook occurs in Canadian waters. In addition, fall Chinook, and possibly threatened spring/summer Chinook, are harvested by a Canadian sport fishery that is not currently subject to the Treaty. We believe this level of harvest, if continued, will negate any benefit derived from Bonneville rate payers' substantial investment in salmon recovery.

The Fisheries Service and other Federal agencies with Endangered Species Act and fish protection responsibilities are working together to define the actions that need to be taken under the Treaty to assure compliance with the Endangered Species Act. The Treaty is an important component of a comprehensive approach to salmon recovery.

The challenges that we have identified reflect the need to address fisheries management as a holistic, ecosystem program. The Council's Strategy for Salmon is a first step in achieving this objective. The second step is integrating the Fisheries Service Recovery Plan. Resolution of weak stock problems in the Columbia River Basin will depend on decisions made in four key areas: hydropower operation, hatchery reform, habitat protection, and harvest regulations. How well the region manages these areas will, in large part, determine our success in removing stocks from endangered and threatened lists and avoiding further listings.

Conclusion

In closing, I wish to reiterate a few points.

We are making a substantial annual investment toward enhancing Northwest salmon runs. Increases beyond the \$300 million current annual investment will soon affect our ability to compete with other power markets. We must address how we can become more efficient and more effective with the \$300 million we're already investing. Examining a results-oriented approach to implementation with budget options that tie funding levels to Bonneville's competitiveness is an example of an approach we would suggest to ensure greater biological success from our annual investments.

If Bonneville is to be successful, it is necessary for our non-customer stakeholders to seek and support activities that enhance Bonneville's competitive position. In the long run, if Bonneville becomes uncompetitive, it will become increasingly difficult to generate funds to meet our obligations including fish and wildlife mitigation and Treasury repayment. We intend to work with our customers and other stakeholders to develop a system which

creates financial rewards for statutorily mandated, non-revenue producing programs as Bonneville's revenue producing programs become more successful.

The region must do a better job prioritizing and sequencing measures in the Council's Program. Agreement on the highest priority work will limit the debate over what the appropriate budget level should be for the program.

We need to continue and improve our work on implementing a comprehensive monitoring and evaluation program. This program will allow us to identify and evaluate what works and what doesn't. The adaptive management policies outlined in the Council's Program will provide a means to "learn from our mistakes" in a scientifically sound manner.

We believe that, if these actions and the other actions I've discussed are taken, our rate payers and the region as a whole will better understand that our commitment to fish and wildlife is an investment that will pay dividends.

This concludes my statement. I would be pleased to respond to your questions.

BPA FISH AND WILDLIFE INVESTMENTS

Chart 1

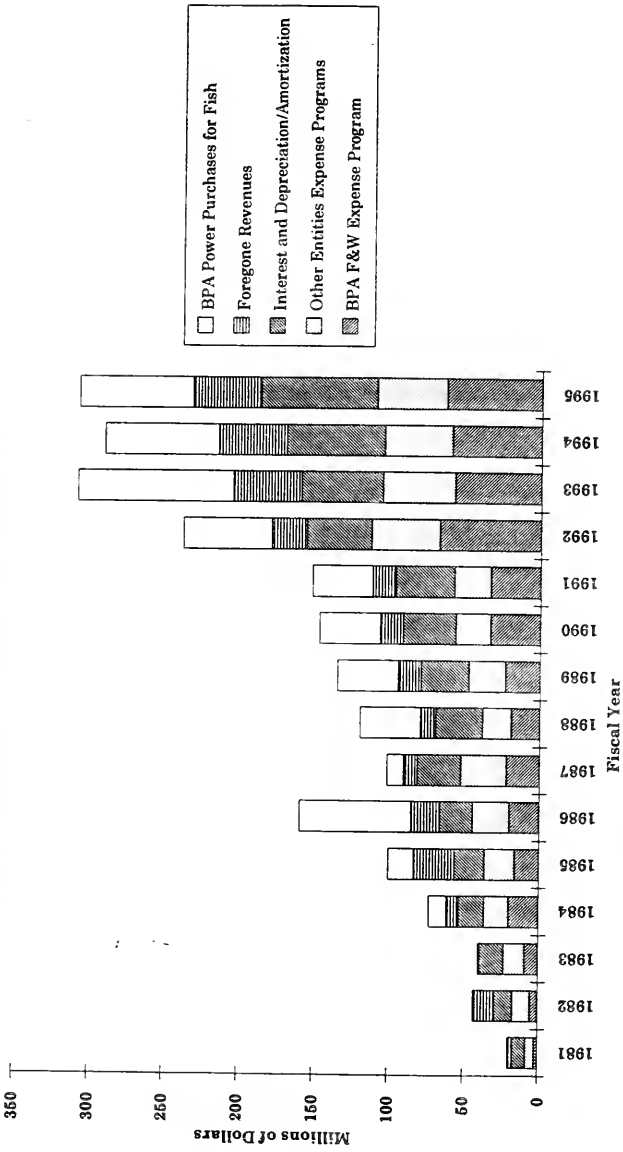
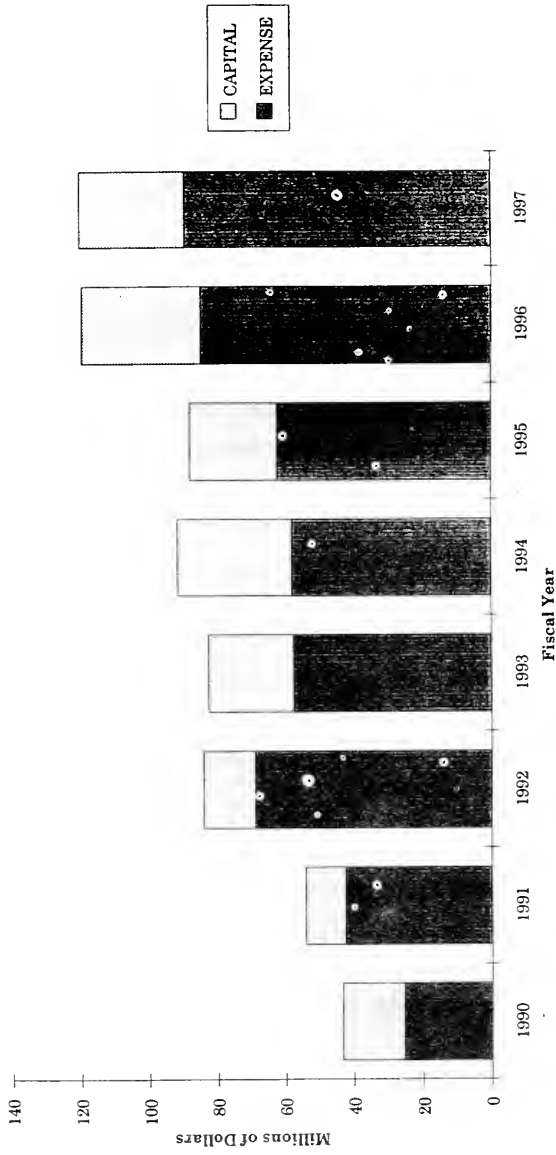


Chart 2

FISH AND WILDLIFE PROGRAM (Obligations)



**Questions for the Bonneville Power Administration Task Force Hearing
September 24, 1993**

QUESTIONS FROM CONGRESSMAN DEFAZIO

Question 1: Is the NPPC's Strategy for Salmon an appropriate and sufficient framework for salmon recovery efforts in the Columbia Basin? What are the strengths and weaknesses of the Strategy for Salmon?

Answer: The Strategy for Salmon framework is adequate, in conjunction with species specific Recovery Plans, to provide basic direction for the region's efforts to restore salmon to the Columbia Basin. There is, however, room for improvement to make the Strategy into a more comprehensive plan, addressing the full spectrum of salmon recovery issues in the region. Planning theory suggests that a plan consider four steps or stages. The first stage, Development, is where a plan's overall goals, objectives and measurable targets are established and actions identified to carry them out. Implementation is the second stage where the actions are accomplished, consistent with the established goals, objectives and targets. The third stage, Evaluation, assesses the effectiveness of the implemented action items. And the last stage, Revision, incorporates modifications to the original plan based on the relative successes or failures encountered during the preceding stages. The Development stage is then reinitiated, incorporating the changes into new goals, objectives, measurable targets and actions.

If the Council had applied such a planning approach in the region, with equal emphasis placed on all four stages, there may have been a significantly different program from what the current Strategy for Salmon now contains. The Development stage could have placed broader emphasis on all the major factors contributing to the decline of salmon. For example, addressing weak stock

management in the Columbia River Basin depends on decisions made in four areas: hydropower operations, hatchery reform, habitat protection, and harvest regulation. Implementation would be comprised of actions more consistently focused on clearly achieving the established goals, objectives and targets as well as identified critical uncertainties. Evaluation would include not only the comprehensive monitoring and assessment of results of individual projects but would aggregate the findings and apply them to the system and basin level. Most significantly, findings from the Evaluation would be assessed and incorporated into an almost continuous update process of the basic plan to ensure success would be repeated and failure avoided.

We feel that when measured against this idealized planning model, the Strategy for Salmon can hold its own in many areas. The objectives of doubling the run and maintaining diversity are understandable and appropriate. Recognition of a watershed/ecosystem approach to habitat and production improvements is biologically sound. Specific measurable targets are defined to some extent by the program measures and correlate back to the doubling and/or diversity objectives. BPA has identified 117 individual actions that primarily address salmon for implementation. Development and application of performance standards that relate to actual biological results has been requested of implementing agencies and fishery managers. The Council has stated its commitment 'to a stringent program of monitoring and evaluating progress to ensure that the region's investment in salmon pays off.' Monitoring and evaluation is also recognized as 'a critical step in carrying out an adaptive management approach to salmon and steelhead rebuilding.' These are all strengths of the Strategy and will contribute to restoring salmon.

Though adequate to provide basic direction, the Strategy could be improved to become the comprehensive salmon restoration plan for the Basin. The Development

stage does not recognize nor address all of the significant activities that contribute to the reduced returns of salmon. If an ecosystem approach is to be followed by the Council, ocean survival and its related issues need to be added to the Strategy. Similarly, harvest needs to be incorporated so that all life-cycle impacts can be equally addressed along with smolt survival. The addition of projects for species other than salmon and especially the incorporation of Phase 4, Resident Fish and Wildlife into the Council's 1993 Fish and Wildlife Program creates conflicts as to prioritization for implementation and the allocation of resources. All recommended actions have to be clearly tied to biological needs. The Council needs to vigorously pursue measures in the Strategy that require the development of performance standards as points of reference from which to monitor and evaluate changes brought about by an action. Satisfaction of the standards will start to bring accountability to the effort. Adaptive management, the equivalent of the Evaluation stage, needs to be institutionalized and then applied. Greater flexibility is needed to quickly incorporate what is learned from monitoring and evaluation and to change existing program measures accordingly. Finally, a system of crediting, through which BPA and the rate payer can understand how current program actions contribute to offsetting total obligations, needs to be incorporated. If these suggestions and the four stage approach or its equivalent were to be adopted, the Strategy for Salmon could become the comprehensive guidance the region needs to restore salmon in the Columbia River Basin.

Question 2: Is implementation of the Strategy for Salmon on track for timely completion? How well are federal and state agencies coordinating their activities with each other and with the Council to achieve timely implementation?

Answer: Implementation of those measures assigned to Bonneville in the Council's Strategy for Salmon are generally on track for timely completion. Through joint efforts with Council staff, we believe that virtually all of the 117 Salmon Strategy measures assigned to BPA are currently planned for funding. In the few remaining areas where questions remain we are working cooperatively with the Council and other entities to address funding needs. It is our expectation that the total additional funding requirement for all measures can be accommodated for less than \$2 million. What is less clear concerning implementation of Strategy for Salmon measures is what specifically is required for each measure and whether measures will be completed in the timeframe originally specified by the Council. We continue to work with the Council and others to clarify these issues in order to accomplish the full intent of these measures in the most expeditious time schedule practicable. What follows are a few examples to clarify what we have experienced while implementing Strategy for Salmon measures.

BPA was asked to develop Model Watershed Plans in Oregon, Washington, and Idaho. Original schedules for the plans called for them to be completed within one year of their initiation. Model Watershed Plans must have the buy-in from the people who live in the study basin. Without local acceptance of the process and the product, time and money will be wasted. In addition to delays incurred in selecting the study basins, considerable time was spent with local people to assemble teams and to work together to identify basin-oriented goals and objectives for the watershed. The result, though not on the original time track, will be plans that

agencies, Tribes and the local residents will be able to use in prioritizing development and responding to salmon restoration issues

Another example of an overly optimistic schedule in the Strategy for Salmon is the study to identify captive brood stock research needs, and to subsequently fund the research and a demonstration project. The complexity of this issue, plus the needed coordination with the National Marine Fisheries Service (Fisheries Service) require considerably more time than the six months allocated for completion by the program. We currently have a contract with the Fisheries Service to conduct a literature search of existing captive brood stock programs and to make recommendations for subsequent actions. We have made a good faith effort to implement this measure, and will continue to proceed with the subsequent steps in a timely manner

The second part of your question concerns the adequacy of coordination among Federal and state agencies, the Council, and others to achieve timely implementation. In our view, coordination can be improved. However, the Council's and the region's emerging emphasis on a more systematic, ecosystem driven program will encourage such coordination. For example, addressing weak stock management in the Columbia River Basin depends on decisions made in four areas: hydropower operations, hatchery reform, habitat protection, and harvest regulations. No one agency oversees or manages all four areas. Previous efforts to deal with salmon stocks in the Columbia River Basin were affected by this fragmentation. The Council's Strategy for Salmon recognizes the need to integrate these areas, and encourages and promotes coordination among all the agencies with authority and responsibility for management.

Another example of improved coordination is a measure from the Strategy for Salmon calling for an Expanded Implementation Planning Process. Modeled similar to the concept of the Bonneville-Columbia Basin Fish and Wildlife Authority Implementation Planning Process, the Expanded Implementation Planning Process is envisioned as a forum within which implementing/funding agencies, fish and wildlife agencies, and land management agencies can coordinate their activities with attendant funding to mutually support each other's efforts, eliminate duplication, and avoid gaps in addressing salmon restoration. This fall, we will be contacting the appropriate agencies to begin the development of the Expanded Implementation Planning Process.

Question 3: Bonneville asserts that its current financial condition will prevent or delay full implementation of the Council's fish and wildlife program. What measures can Bonneville take to ensure more stable funding for the Council's fish and wildlife programs, given its wide swings in revenues?

Answer: As background, the events that led to the reduction in the fish and wildlife budget was a dramatic decrease in BPA's financial health as a result primarily of the drought and increased fish flows required by the Endangered Species Act. It is important to keep in mind that in spite of the financial situation being experienced by BPA, our costs for fish and wildlife increased from approximately \$150 million in 1991 to over \$300 million in 1993. Enclosed is a chart that displays our overall trend for fish and wildlife funding. The BPA effort may be criticized on the margins, but the overall trend certainly reflects the region's increasing commitment to protect and enhance fish and wildlife.

Bonneville did not assert that our financial situation would prevent or delay full implementation of the Council's program. We have consistently stated that we are committed to full implementation of the program as a comprehensive guide for protecting, mitigating, and enhancing fish and wildlife impacts of Federal hydroelectric projects in the Columbia River Basin. However, in response to Bonneville's extreme financial stress, we must carefully schedule and sequence measures described in the program, and balance their pace of implementation with Bonneville's other responsibilities.

There are three-objectives which can help ensure adequate Bonneville funding for the fish and wildlife program. Bonneville's Competitiveness Project, an effort through which we are striving to become more results-oriented, cost-conscious, customer-focused, and market-driven, is moving us to rethink how we accomplish

our fish and wildlife responsibilities. Our effectiveness in meeting these responsibilities will help sustain our business advantage and our financial viability, necessary to support our fish and wildlife responsibilities.

Second, we need to get our customers, state and Federal fish and wildlife agencies, Indian Tribes, the Council, and other interested parties, invested in both Bonneville's financial and biological success. We plan to identify incentives to help guide the \$300 million annual investment towards measurable results targeted at weak stocks and increasing numbers of adults returning to the Columbia River. We are interested in examining budgeting options including incentives which reward results and increase funding as Bonneville's competitive position improves. We currently see this option and others being discussed as part of the development of Bonneville's 10-year fish and wildlife implementation plan.

Third, a program which identifies goals and objectives and produces results will create less divisiveness within the region regarding funding levels. The size of the current expenditures relative to the perceived benefits, along with a sense that the objectives are frequently shifting, is a deterrent to robust and widespread constituent support which helps ensure stable funding.

Question 4: What can be done to facilitate water conservation and other changes in regional water management to provide increased flows for power production and salmon recovery?

Answer: Since 1980, a number of changes in regional water management have occurred for the specific purpose of enhancing salmon survival. These actions can be broadly classified as either flow measures or spill. Conceptually, the flow measures have been provided by reducing reservoir storage releases during the winter to conserve water for spring/summer release. This, in turn, has the effect of reducing winter power generation when power demand is greatest and then increasing both spring/summer flows and power generation capability during a period when demand is less.

The first flow measure, created as a result of the Northwest Power Planning Council's original Fish and Wildlife Program published in 1982, was the Water Budget. The Water Budget was first implemented operationally in 1985 and is comprised of 3.45 million acre feet (MAF) from the mid-Columbia River and 0.6 MAF from the Snake River. The annual regional firm load capability foregone as a result of the water budget is about 3000 megawatt months. This energy loss is the result of reduced winter firm energy capability and the lack of a market for the added springtime firm power generation. This is offset, to a limited degree, by increased nonfirm.

The spill Memorandum of Agreement was signed and first implemented in 1989. Signatories were BPA, five fishery agencies, five tribes and the Department of Interior. The Agreement called for increased spill at Lower Monumental, Ice Harbor, John Day and The Dalles dams for the purpose of enhancing fish passage survival, since these dams did not have juvenile bypass facilities. The Agreement

was intended to provide spill as an interim survival measure until bypass systems were in place at these projects.

The Phase II Fish and Wildlife Program Amendments were published by the Council in 1991. These Amendments called for additional volumes to be provided beyond the water budget, to enhance springtime flows, as well as several other actions. Specifically, up to 3 MAF of flow augmentation was to be provided by reducing winter drawdown of Grand Coulee and Arrow reservoirs. In addition, Dworshak's springtime release volume was nearly doubled to 1.1 MAF, and the amendments called for summer release volumes from Dworshak. Finally, these amendments called for the four lower Snake River projects to be operating at minimum operating pool to enhance in-river flow velocities, and the operation of John Day at a reduced water level.

Finally, as a result of the listing of several Snake River salmonid stocks under the Endangered Species Act, and the National Marine Fisheries Service 1993 Biological Opinion, further volumes were provided during the summertime for flow enhancement, and additional spill at Ice Harbor was also provided. Specifically, up to 0.6 MAF of non-Treaty Storage draft was called for, and added summertime volumes from Dworshak were provided. Also, added volumes were provided through the Idaho Water Rental Program. These volumes were all intended to be used for meeting spring/summer flow requirements at Lower Granite and McNary Dams. The springtime McNary flow requirement was similar to that contemplated but not adopted during the Council's Phase II Amendment process.

During 1993, the costs of all these actions (not including costs associated with drawing the Lower Snake projects to minimum operating pool and John Day to minimum irrigation pools) can be broken down as follows:

1. Water Budget	\$40 million
2. Phase II volumes -- Columbia River	33 million
3. Snake River	16 million
4. Additional ESA flow Requirements	10-15 million
5. MOP Operation (Phase II)	25 million
6. Phase II Spill	<u>20 million</u>
Total	\$144 - 149 million

In addition to these actions, a number of actions are currently underway in the region to increase flows for threatened and endangered fish runs. The Phase II Fish and Wildlife amendments recommended that BPA, the Bureau of Reclamation, and Northwest States identify an additional one million acre feet in the upper Snake, and the means to deliver biologically significant flow quantities. Arrangements for meeting these flow targets include purchasing water from water banks in Idaho, releasing uncontracted storage in Bureau of Reclamation storage projects, and changing the timing of water releases in order to provide target flows at the times needed for migrating fish. Power exchanges, purchases, and other arrangements at Canadian hydro projects and with the Idaho Power Company also have provided increased flow in the Snake and Columbia Rivers.

Our experience during the 1991 water year demonstrates that significant water can be acquired (237 thousand acre feet (kaf) was provided from water rental and uncontracted storage and was shaped into two separate summer releases) and shaped for beneficial use during the summer migration period, but only if these

activities are not prevented by the state of Idaho, availability of water, and have the cooperation of Idaho Power. Attempts to provide water in 1992 were less successful, in part due to drought conditions, but also because of the risks faced by Water District storage holders when making their water available for out-of-district uses. In 1993, water was provided both through rental from the Idaho water banks (100 kaf) and as a result of the Bureau of Reclamation making water available from uncontracted storage (200 kaf) and any water it had reserved to maintain powerhead (140 kaf) at upriver storage reservoirs.

However, institutional, cultural, and physical barriers to delivering water for flow augmentation from the Snake River are substantial. Activity in this arena has served to focus attention on the problems and potential solutions, and has resulted in Idaho legislation authorizing the use of rental bank water for flow augmentation through the 1994 water year. The legislation subjects out-of-district water acquisitions to numerous conditions and, ultimately, to the approval of the Director of the Idaho Department of Water Resources (IDWR). It also stipulates that these types of water uses are on a test basis, and, presumably IDWR will determine their success and benefits to the State of Idaho. It is unclear whether Idaho will allow water to be provided past 1994. Additionally, due to last-to-refill restrictions placed on water supplied in 1993, there is a significant risk that some or all of the volumes supplied in 1993 will not be available in 1994.

Uncertainties surrounding both water supply and the political environment have precluded the delivery of a predictable volume of water from the Snake River above Brownlee Reservoir. We have learned that in most water years, there is not only water available, but there are also water right holders willing to market that water to out-of-state interests. While we expect a continuation of the current convoluted

processes governing delivery of Idaho water, we do so with the knowledge that there is some hope of success, and at least a potential interest in improving the system.

These actions change the volume and timing of flows but do not increase the water available for power production and salmon recovery. Increases in water quantity must come from the reallocation of water used for consumptive purposes to instream uses. Consumptive uses include municipal, industrial, and agricultural uses, with irrigated agriculture being, by far, the largest consumer of water. Opportunities for water conservation are greatest in irrigated agriculture, although all water users need to become more efficient. Water conservation opportunities include improvements in water transport and storage systems, technical improvements to irrigation equipment, more effective application of water to crops, and elimination of non-consumptively used "waste" water. Reallocation of water from lower value to higher value uses through market actions, such as water transfers, dry year leases, and crop and land use changes also provides opportunities to increase instream water volume. The states have a key role in water conservation because state water laws determine how water is allocated, used, prioritized, and transferred. In recent years, many of the western states have included instream uses as legitimate and valuable uses of water.

Development of additional storage projects is another possible solution to augment flows for fish. These new projects would be most effective if they were operated primarily to meet fish requirements.

BPA is working on a pilot acquisition project to test the concept of acquiring water rights for instream flow. Although the amount of water is small, the Skyline project, located in eastern Oregon, will allow us to test the ability to protect instream water rights. The Skyline Project will give us experience in assessing the economic and environmental costs and benefits associated with water acquisitions. We will work with the local community to mitigate the impacts from reallocating water from agriculture to instream flows for fish and power generation. If Skyline and similar pilot projects demonstrate that water acquisitions can deliver flow augmentation which significantly benefit fish survival, we will pursue other acquisition projects throughout the region.

BPA also promotes water and energy conservation through its Irrigation and Conservation Acquisition Agreement (WaterWise Program). The objective of the program is to acquire cost-effective energy savings in irrigated agriculture. Through this program, BPA provides funds for irrigation system evaluations, design work for new and expanding systems, and financial incentives for efficiency improvements to upgrade existing irrigation system. BPA also provides funds for irrigation management activities. From 1982 - 1992, estimated energy savings for this program have been 8.9 average megawatts. In Idaho, BPA is targeting additional energy savings of .3 average megawatts per year for the next decade.

One significant action addressing regional water conservation and use has already taken place. The Western Water Policy Review Act of 1992 (P.L.

102-575) recognized the need to examine water resource problems affecting the 19 western states. The Advisory Commission established by this Act will review current and proposed Federal water programs including storage, conservation, and management of water resources.

Question 5: Please provide the annual cost of foregone power sales due to water withdrawn from the Columbia River and its tributaries for irrigation purposes, where such irrigation is accomplished using power supplied by Bonneville. Also, please estimate the cost of foregone power sales for water withdrawn outside BPA's service area. What is the total volume of water withdrawn from the Columbia River and its tributaries for irrigation purposes? If necessary, please consult with the Army Corps of Engineers and Bureau of Reclamation in developing your response to this question.

Answer: In January 1993, the A. G. Crook Company published a draft report under contract with BPA entitled *1990 LEVEL MODIFIED STREAMFLOW*. The report identified a total of 7 million acres of irrigated lands in the Columbia River Basin upstream from Bonneville Dam. This was broken down into: 2.2 million acres upstream of the confluence of the Columbia and Snake Rivers; 4.1 million acres in the Snake River Basin and 740 thousand acres downstream from the confluence of the Columbia and Snake. The report stated that the irrigation use depletions ranged from 1 to 3 feet of water annually for each acre depending on the type of crop, method of irrigation used and the location. Assuming an average depletion from irrigation of 2 feet per acre basin-wide that amounts to about 14 million acre-feet of depletion from the entire Columbia River Basin which includes the Snake River Basin. A preliminary estimate of the depletion in the Snake River Basin has been set at 7 million acre feet by A. G. Crook. A very rough number of the additional generation that could be achieved if no depletion occurred is approximately 6 - 12 million MW-hrs. If the power was sold at \$25/MW-hr, the annual depletion translates into \$150 - \$300 million dollars. We have not spent a lot of time developing these numbers but we believe this is a reasonable estimate.

Several years ago BPA's Power System Branch conducted two power studies at different levels of irrigation depletion--the depletion in 1980 compared to an

estimate of future depletion in year 1997. From these studies BPA estimated a ratio of 60 MW/kcfs of critical period firm power loss to irrigation depletion.

If we use the same power to depletion ratio, the 14 million acre-feet of depletion in the BPA service area would generate an additional 10 million MW-hrs of annual energy. Approximately 60 percent of the generation would occur at federal projects.

- Question 6:** Are existing institutions and institutional arrangements at the state and federal level adequate to implement salmon recovery plans? What improvements should be made to ensure better regional coordination among the many federal, state, tribal and private entities that must work together to achieve salmon restoration? In particular, the following alternatives have been suggested for better implementing salmon restoration plans. Please comment on each:
- Question 6a:** Providing additional public involvement in existing federal processes, including review of annual operations;
- Question 6b:** Changing the membership, structure, or authorities of the Council;
- Question 6c:** Incorporating salmon recovery measures into the Pacific Northwest Coordinating Agreement;
- Question 6d:** Adopting a new agreement or creating a new regional entity among BPA, the Corps of Engineers, the Bureau of Reclamation, the Council and others to administer annual river operations;
- Question 6e:** Transferring a lump sum in fish and wildlife funds from BPA to fish and wildlife agencies to be administered separately by those agencies for salmon recovery, while providing accountability for the results of the work funded; or
- Question 6f:** Legislatively creating a new entity or designating an existing agency with authority to mandate salmon recovery actions.

Answer: Before commenting on the specific alternatives you have proposed for better implementing salmon restoration plans and the other issues imbedded in your alternatives, it is important to discuss current institutional arrangements and the plans BPA is proposing along with the Corps of Engineers (Corps) and Bureau of Reclamation (Reclamation) to consider new methods for regional decision-making and public participation.

First, we believe the existing institutions and their arrangements have provided an adequate ability to implement the near-term Strategy for Salmon and salmon recovery plans. However, we believe our focus should now be on achieving the desired results -- actions to return salmon to the wild. For the past 13 years, we have collectively been dealing with the current institutional relationships and

authorities. We should not lose sight of where our energies should be focused -- returning salmon to the Columbia River and its tributaries -- and not centered solely on developing new arrangements or replacing existing ones for the purpose of determining and overseeing the restoration process.

As part of the Columbia River System Operation Review (System Operation Review), jointly being conducted with the Corps and Reclamation, a long-term system operating strategy for the Columbia River Basin is being developed. The objective of the strategy is to identify operating requirements that balance the competing demands imposed by all of the users of the river. In light of this objective, the System Operation Review agencies also recognized that any long-term strategy needed to be dynamic and to be able to respond to new information and new conditions as they arise. Consequently, the System Operation Review is examining institutional arrangements--we have named this effort "The Forum"--that could provide effective review, updating and implementation of the operating strategy. The System Operation Review is presently assessing options similar to those identified in your list as well as several others. Specifically, we are reviewing decision-making processes and opportunities for involvement of others in the operation of the river. We are addressing these interrelationships now to ensure that in the future, there is sufficient flexibility to accommodate changing conditions and technology. The results of these efforts will help to improve coordination among regional decision-makers. Further information on the Forum alternatives is available along with an initial assessment of the costs and benefits.

Answer 6a: Providing additional public involvement in existing Federal processes, including review of annual operations.

There are many existing federal processes which provide opportunity for public involvement in salmon recovery issues. As mentioned earlier, the System Operation Review is considering different forms of a Forum that would streamline and consolidate existing processes, or provide a more holistic process for the public to participate in decision making on system operation and salmon restoration

Existing public processes include:

The Northwest Power Planning Council's Fish and Wildlife Program. The Council has developed a "Strategy for Salmon" and is currently revising its program to incorporate the Salmon Strategy along with new measures addressing resident fish and wildlife. The Council's Program is developed through extensive public involvement, including general public comment and a Fish Operations Executive Committee. While the Council, as an interstate compact, has limited authority, and ocean harvest is outside its purview, it provides an overall view addressing both salmon, resident fish, and wildlife concerns.

BPA Fish and Wildlife Program Annual Implementation Work Plan and Implementation Planning Process: BPA funds approximately 250 projects for fish protection and enhancement under the Council's Program through its Annual Implementation Work Plan. This plan is developed through consultation with fish and wildlife agencies, tribes, and interest groups, through an Implementation Planning Process. The draft plan is subject to wider public comment.

BPA Programs in Perspective: BPA's fish and wildlife program has also undergone biannual public review, along with other BPA programs, in a regular agency-wide public process known as Programs in Perspective. This process has brought public viewpoints into the agency's overall direction, program direction, and funding decisions.

BPA public involvement on specific projects: BPA conducts NEPA review including public involvement as appropriate, on individual fish and wildlife projects. For example, BPA is completing an extensive environmental impact statement on a project to restore salmon runs in the Yakima Basin.

U.S. Army Corps of Engineers 1993 Supplemental Flow Options/Analysis Environmental Impact Statement: In 1993, the Corps prepared a Supplement to the original Environmental Impact Statement that covered 1992 operations, with attendant public review, of flow regimes for the year's operation of the hydroelectric system. This Supplemental Environmental Impact Statement will cover 1994 operations and beyond until the System Operation Review is completed and a new operating strategy is selected.

System Operation Review: BPA, the U.S. Army Corps of Engineers, and the Bureau of Reclamation are in the midst of a major environmental impact statement on operation of the Columbia River System. The System Operation Review examines the interrelated effects of all river uses, and has a major focus on fish and wildlife. The System Operation Review is expected to produce a long-term "System Operation Strategy" that will provide a framework for balancing all river uses. Numerous regional experts representing the various river uses are participating in the technical

analysis process and assisting in determining environmental impacts of each alternate operating strategy. As part of that strategy and mentioned above, SOR staff are also evaluating a permanent Forum to provide for public involvement and participation in decision making on operations. The environmental impact statement is scheduled for completion in 1995. The Draft System Operation Review Environmental Impact Statement is due out for public review in early 1994, and may be an appropriate venue in which to focus Northwest concerns about salmon recovery as it pertains to Columbia River uses.

National Marine Fisheries Service Biological Opinion: Each year since salmon species were listed under the Endangered Species Act, BPA has prepared a Biological Assessment of the plans for hydro operations, including mitigation measures. The National Marine Fisheries Service responds with a Biological Opinion on the effect of planned hydro operations. The Fisheries Service consults extensively with other federal agencies in preparation of the Biological Opinion. BPA defers to the Fisheries Service in its assessment of whether any further consultation is needed.

Pacific Northwest Coordination Agreement Planning: BPA, the U.S. Army Corps of Engineers, Bureau of Reclamation, and other parties to this Agreement incorporate fish and wildlife operating requirements in preparation of the annual operating plan for the river system under the agreement, using input from all the processes listed here. It is anticipated that, after completion of the System Operation Review, the Forum will contribute to annual river system planning.

Fish Passage Center: Fish and wildlife agencies and tribes have formed the Fish Passage Center, which Pacific Northwest Coordination Agreement parties consult throughout the year as issues affecting salmon passage arise during river operations. The Fish Passage Center oversees use of the Water Budget and other water dedicated to fish flows, and advises on steps to assist fish passage. This is one of the projects supported and enhanced in BPA's Annual Implementation Work Plan.

BPA Commercial Services and Rates Environmental Impact Statement: BPA is in the process of developing new power sales contracts with its customers and developing appropriate rate design for future rate cases. It has recently expanded the environmental impact statement supporting these actions to encompass rate design. This environmental impact statement also addresses fish and wildlife issues, insofar as those are affected by BPA contract and/or rate design issues.

This listing focuses on those processes in which BPA is directly involved. There are many others outside our realm of responsibility.

In summary, there are many opportunities for concerned citizens to become involved in salmon protection issues. But the opportunities are fragmented. No single process encompasses all the relevant issues -- all phases of the salmon's life cycle and all competing river and/or ocean uses which affect that life cycle. If more public involvement opportunities are to be added to the mix, it is advisable to consider whether a new arrangement can be developed to bring all the issues together, so that the future direction in system operation and salmon recovery evolves from a consideration of all issues. This is outside BPA's purview to institute

alone, or indeed the mandate of any individual federal agency. Together and with support from Congress, a new Forum may be possible. BPA would be willing to participate in such a whole-salmon view approach, if one were established.

The Forum alone, however, cannot address the full range of issues affecting Columbia River salmon survival. As noted in our testimony, salmon in coastal streams and the lower Columbia River are suffering population declines clearly not associated with hydroelectric operations. The SOR Forum can address effects on salmon of Columbia River System operations, but a broader forum would be required to encompass harvest and habitat issues, particularly those associated with the international, open ocean phase of the salmon's life cycle.

Answer 6b: Changing the membership, structure, or authorities of the Council.

Structuring of the Northwest Power Planning Council and integrating its role and authorities with those of Bonneville was a bold experiment in 1980. Some may argue that the experiment failed -- that the Council was not provided sufficient authority over the federal operating and regulatory entities. Others hold that the Council politicizes a highly technical industry and has too great an influence in regional power issues. At times, both BPA and the Council have pushed at the edges of our separate authorities and have tested the durability of the relationship mandated by the Congress. At no time has that relationship been more strained than at the present, precipitated by a number of regional and global problems including drought, depressed aluminum prices, the shutdown of Trojan, and environmental concerns centering around fish and wildlife. Yet, no one has

seriously pursued the restructuring of the Council or its role. However, BPA believes any fundamental restructuring of the Council or redefining of its authorities would have an unsettling effect on the region at a time when, more than ever, we need to be working together for economic and environmental stability.

Answer 6c: Incorporating salmon recovery measures into the Pacific Northwest Coordinating Agreement.

The Pacific Northwest Coordinating Agreement (Coordinating Agreement) provides sufficient flexibility to incorporate salmon recovery measures. There are provisions specifically meant to cover non power uses that state, "Nothing in this agreement shall require a party to operate a Project (i.e. a dam such as Grand Coulee) in a manner inconsistent with its requirements for non power uses or function..."

The Federal agencies have many methods available to meet fish requirements and the Coordinating Agreement allows departures from an annual operating plan to satisfy salmon recovery measures. Currently, salmon recovery measures such as Vernita Bar, Water Budget and Flow Augmentation are reflected in Coordinating Agreement planning. However, if needed, the Federal agencies can and do depart from the Coordinating Agreement operating plan to provide a salmon recovery measure. For example, in the past two operating years, the Federal operating agencies departed dramatically from the planned operation of Dworshak Dam in order to meet Snake River flows called for in the Council's amendments to its Fish and Wildlife Program and the Fisheries

Service's biological opinions. There is no increased likelihood of providing a recovery measure by including it in Coordinating Agreement planning.

Financial impacts to BPA attributable to a recovery measure's effect upon power rights and obligations under the Coordinating Agreement are of concern to BPA. If a measure is submitted with sufficient lead time to incorporate it in the planning cycle, then these impacts are minimized. Even when there has not been the desired lead time, parties to the Coordinating Agreement have negotiated a sharing of financial impacts. If the coordination of Federal, state, Tribal and private entities is enhanced such that recovery measures are determined with sufficient lead time, this will go a long way to ensuring both a reliable source of regional power and an equitable sharing of recovery measure costs.

Answer 6d Adopting a new agreement or creating a new regional entity among BPA, the Corps of Engineers, the Bureau of Reclamation, the Council and others to administer annual river operations.

Although improvements are possible and new approaches are being evaluated as part of the System Operation Review Forum objective, river operations for fish are currently proposed, discussed, agreed to, and coordinated through the Four-Agency Operations Team (4A) and the Fish Operations Executive Committee. The 4A agencies are National Marine Fisheries Service, U.S. Army Corp of Engineers, U.S. Bureau of Reclamation, and BPA. The 4A Team was created to implement river operations for listed stocks in the Snake River. The Fish Operations Executive Committee is comprised of representatives of the Federal action agencies, regional fisheries agencies and Tribes, utility interests, and the

Northwest Power Planning Council. It was created by the Council in Phase III amendments to the Fish and Wildlife Program. The Fish Passage Center, a regional entity also created by the Council and funded by BPA, provides smolt monitoring information and advice to both the Fish Operations Executive Committee and the 4A Team.

BPA is committed to making existing processes function better in administering river operations. We see opportunity for improvement in the following areas: complete executive-level participation in the Fish Operations Executive Committee; real-time data accessibility and transfer; biological criteria for decision-making; and monitoring and evaluation of specific river operations, such as flow augmentation, assessed by measuring fish survival.

Answer 6e: Transferring a lump sum in fish and wildlife funds from BPA to fish and wildlife agencies to be administered separately by those agencies for salmon recovery, while providing accountability for the results of the work funded.

BPA is willing to consider a lump sum transfer of funds to the fish and wildlife agencies, but in the form of a Fish Trust modeled on the Wildlife Trust currently in place with Montana and the Dworshak Trust with Idaho. Integral to such a trust would be a 'hold harmless' clause, providing BPA with proper mitigation accounting and indemnifying the Agency from further claims. BPA recognizes an ongoing responsibility under the ESA, independent of a Trust. In the wildlife area, these agreements have greatly simplified the identification of projects for implementation, as well as, provided assured long term funding. Considerable moneys have been saved that can go to the resources rather than being spent on overheads

and administration. They also create a common objective for all parties, to cost effectively protect fish and wildlife. Issues related to institutional arrangements have also been virtually eliminated

Answer 6f: Legislatively creating a new entity or designating an existing agency with authority to mandate salmon recovery actions.

Creating a new entity or designating an existing agency with decision making authority are possibilities being considered in the SOR under the Forum. While this could improve regional decision making and we do not wish to prejudge this alternative, there are some concerns that would affect the quality of salmon recovery efforts and regional coordination. Placement of authority to mandate salmon recovery actions upon a single agency could inhibit achievement of other desired goals, such as the protection of species other than salmon.

Federal and non-Federal entities already have a common responsibility to avoid jeopardy to and promote the recovery of listed anadromous and other species. In determining whether jeopardy is avoided, the Fisheries Service studies the combined effects of all actions affecting listed anadromous species. Federal and non-Federal entities also have responsibility to avoid actions with adverse impact upon listed species unless they act in accordance with terms and conditions of incidental take statements or permits issued by the National Marine Fisheries Service that allow otherwise unlawful "take" of listed species.

The underlying cause of controversy about salmon recovery efforts is the tremendous uncertainty about measures needed to improve conditions for

salmon. Principal examples of uncertainties include the extent to which increased flow, continued spill, enhanced habitat, reduced harvest, and better hatchery practices improve survival of salmon. Assuming increased survival, additional questions exist with respect to how to improve flow, spill, habitat, harvest and hatchery actions.

Compounding this uncertainty is the fact that salmon recovery efforts may adversely affect non-anadromous species that are in troubled conditions. The Fish and Wildlife Service has listed populations of grizzly bear, peregrine falcon, gray wolf, bald eagle, and certain species of snails under the Endangered Species Act. It has proposed to list Kootenai River sturgeon, and it is considering a petition to list bull trout.

Given these uncertainties, persons adversely affected by a measure understandably want to be sure that the measure is really needed and, if so, want achievement of the desired result in the most cost-effective manner possible. They also want to be sure that the measure is part of a comprehensive solution improving all life stages of the salmon. Their concern becomes especially great when economic resources, whether from private or public revenues or appropriations, are limited and when ways of life may change. Persons adversely affected by a measure will tend to be more conscious of cost-effectiveness than those who are not. Consequently, BPA and its customers are concerned about the costs of water augmentation and spill to aid smolt migration. Agricultural and other users of water are concerned about foregoing divisions and leaving water in-stream for fish. Harvesters are concerned about reducing harvest. Hatchery interests are concerned about reduced artificial production.

Landowners are concerned about limiting activities in riparian habitat, and recreational interests are concerned about the drafting of reservoirs to aid fish migration.

Controversy will decrease, and coordination will increase, as the region learns from research and the monitoring of measures undertaken to improve fish conditions. Coordination can also increase if interests in the Pacific Northwest can develop a consensus as to how to address uncertainties. A desirable consensus would be to share responsibilities in a comprehensive plan addressing the life stages of the listed species and to address uncertainties in a cost-effective manner.

Question 7: How do you ensure that your actions satisfy the federal government's trust obligations to the Indian Tribes of the Pacific Northwest?

Answer: BPA consults with and enters into agreements with Indian Tribes as well as other entities on many matters, including the development of and implementation of measures to protect fish and wildlife adversely affected by Federal hydroelectric projects. Principal fish and wildlife agreements with Indian Tribes as parties include hatchery operation agreements¹, the Washington Wildlife Mitigation Agreement² the Dworshak Wildlife Mitigation Agreement³, the Fish Spill Memorandum of Agreement⁴, additional contracts to implement particular measures benefiting fish and wildlife, and anthropological studies at selected Native American historical sites. For more information on contracts with Indian Tribes to implement particular fish and wildlife measures, see Table A.

These efforts support the U.S. Department of Energy's Indian Policy, which has the purpose of facilitating a government-to-government relationship with Indian Tribes and ensuring consideration of tribal concerns prior to making decisions and taking actions. BPA's fish and wildlife measures improve conditions for many species and benefit Indian Tribes and others in the Pacific Northwest.

¹The Confederated Tribes of the Colville Reservation (CCT), Spokane Tribe of Indians, and the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) are parties to these agreements.

²The CCT, CTUIR, and the Yakima Indian Nation (YIN) are parties to this agreement.

³The Nez Perce Tribe is a party to this agreement.

⁴The CCT, CTUIR, Confederated Tribes of the Warm Springs Reservation, and Nez Perce Tribe are parties to this Agreement.

In addition, the Northwest Power Council solicits recommendations from Indian Tribes and provides many opportunities for public involvement during development of its Fish and Wildlife Program. Indian Tribes of the Pacific Northwest actively participate in this process.

Question 8: The Council's program and Bonneville's funding have created the expectation among the tribes that treaty fishing rights will be addressed through increased artificial production. However, NMFS's current discussions of the role of artificial production have stalled construction of new tribal hatcheries. What are you doing to resolve this stalemate and when do you expect to resolve it?

Answer: The apparent stalemate between the Fisheries Service and the tribes centers on very complex, fundamental fisheries management issues. The delay is affecting not only tribal proposals but the development of all artificial production facilities in the region. At stake is the future of artificial production in the Columbia Basin. Though BPA has been an active participant in the implementation of the Council's program, funding most of the recent construction of production facilities, this decision ultimately remains the responsibility of the resource managers. We have an interest in the outcome of discussions since we see supplementation, the use of genetically selected fish bred in a production facility and reared in a wild environment, as a potentially significant component of any region-wide rebuilding effort for wild fish. Our concerns also extend to the need for the protection of unique genetic resources from possible dilution resulting from straying. We are closely monitoring the issue and are willing to assist the Fisheries Service and the tribes as appropriate, but defer to the responsible fisheries management agencies in the region to break the deadlock.

Concurrently, BPA, the U.S. Fish and Wildlife Service, and regional agencies and tribes have embarked on a Comprehensive Analysis of Anadromous Fish Production which will evaluate the role/impacts of artificial production on naturally spawning stocks. The analysis may help define the need for specific facilities and how they may be operated to decrease impacts to stocks of concern.

Additionally, BPA is strongly supporting the activities of the Integrated Hatchery Operations Team formed under the Council's Strategy for Salmon. The Integrated Hatchery Operations Team is developing Columbia Basin wide policies for the operations of all hatcheries.

Bonneville Power Administration
August 23, 1993

Table A
BPA Contracts with Indian Tribes to Implement Fish and Wildlife Measures

Contract	Indian Tribe	FY 1993	FY 1992	FY 1991	FY1990
Yakima Natural Production & Enhancement Program	Yakima	875,172	1,406,383	899,001	1,173,280
Lower Yakima Valley Riparian/Wetlands Phase I	Yakima		216,386		
Warm Springs Habitat/Prod Potential Assessment	Warm Springs	14,489	30,710	54,094	65,520
Hood River Outplanting Facilities	Warm Springs	66,689	36,746	11,648	86,883
Pelton Dam Ladder Production	Warm Springs	30,053			
Nez Perce Tribal Hatchery	Nez Perce	505,256	93,975	188,002	480,000
Lower Clearwater Habitat Study	Nez Perce	5,229	17,402	126,918	220,512
NE Oregon Outplanting Facilities	Nez Perce	242,701	146,363	108,695	292,719
Salmon Supplement Studies	Nez Perce	165,275	107,050		
Haysfork Gloryhole	Nez Perce	29,273			
Lower Clearwater Aquatic Mammal Study	Nez Perce			113,129	68,820
Dworshak Impacts Assessment/Rainbow/Smallmouth Bass	Nez Perce				* 106,593
Bonifer/Minthorn Release & Collection Facilities	Umatilla	199,867	200,158	146,285	215,782
Umatilla Habitat Improvement	Umatilla	121,438	174,130	194,159	285,548
Umatilla River Basin Trap & Hall Program	Umatilla	340,889	302,653	82,101	139,773
Conforth Ranch - Option	Umatilla	158,185			
NE Oregon Outplanting Facilities	Umatilla		137,117	181,136	296,733
Umatilla Basin Natural Production	Umatilla		376,934		
Umatilla Hatchery Tribal Fish Culture Training Program	Umatilla			15,745	
Hungry Horse Mitigation/Flathead Lake - Monitoring	Salish-Kootenai	42,786	51,500		
Bear Valley/Yankee Flv/East Fk Habitat Imp	Shoshone-Bannock	160,407		358,721	450,000
Salmon Supple. in Id Rivers	Shoshone-Bannock	138,078	106,920		
Snake River Sockeye Salmon Habitat	Shoshone-Bannock	28,000	385,732	257,575	
Habitat Improvement - For Hall Bottoms	Shoshone-Bannock	210,645	50,601		
Habitat Improvement - Lake Roosevelt	Colville	195,080	298,972	127,792	115,150
Hellsgate Big Game Winter Range	Colville	127,616	42,695		
Colville Hatchery	Colville		293,382	303,668	187,363
Monitor and Evaluate Improvement Projects - Lake Roosevelt	Spokane	289,849	225,675	221,372	195,025
Blue Creek Winter Range	Spokane		29,131	23,876	
Spokane Tribal (Galbraith Springs) Hatchery Equipment	Spokane				203,566

Galbraith Spring Hatchery Manager Training Program	Spokane					21,521
Storm Survey Hatchery, Habitat Improvement	Coeur D'Alene	156,840	92,857		93,607	79,224
Duck Valley Resident Fish Project	Shoshone-Paiute	70,275	85,000		85,000	50,000
Experimental Sturgeon Hatchery & Invst.	Kootenai Tribe of Idaho	509,741	179,723		150,000	236,430
Pend Oreille Wetlands Acquisition	Kalispel	81,533			18,395	
Assess Fishery Improvements - Pend Oreille	Kalispel				30,524	154,298
Total		4,769,366	5,088,195		3,791,443	5,124,740

STATEMENT OF STAN GRACE

Mr. GRACE. Good morning, Chairman DeFazio, Mr. LaRocco and staff members of the task force. I am Stan Grace, Chairman of the Northwest Power Planning Council. With me today is Jay Webb, Idaho Council Member and member of the Council's Fish and Wildlife Committee.

Thank you for the opportunity to present the Council's views on the recovery of salmon stocks in the Columbia River basin.

Under the authority of the Northwest Power Act of 1980, the Council prepares a program to protect, mitigate and enhance fish and wildlife and related spawning grounds and habitat of the Columbia River and its tributaries. This is our Columbia River basin fish and wildlife program.

In 1992, we amended the program with our strategy for salmon, a comprehensive program of measures aimed to improve salmon survival at every stage of the life cycle. Our program is designed to balance competing river uses, while strengthening and rebuilding salmon and steelhead runs. Our aim is to make future Endangered Species Act petitions for salmon unnecessary and ultimately to produce healthy and harvestable populations of fish.

We want to avoid the contentious legal battles that characterize recovery planning for the northern spotted owl. We devised our program with regionwide public participation. We firmly believe that a regionwide cooperative effort is preferable to federal or legal intervention that could lead to extensive and expensive conflict, litigation and economic disruption. The key now is implementation. That is where I would like to focus the remainder of my comments today.

I am pleased to report that most of our salmon strategy is being implemented. However, we are concerned that it is being implemented in a somewhat fragmented manner. The Northwest Power Act gives clear direction to certain federal agencies to protect, mitigate and enhance fish and wildlife and related spawning grounds and habitat of the Columbia River basin and to coordinate their actions.

These agencies which manage or regulate hydroelectric dams include the Bonneville Power Administration, the U.S. Army Corps of Engineers, the Bureau of Reclamation and the Federal Energy Regulatory Commission. However, many of the state, federal, tribal and other agencies we depend on to implement our program are not covered by the Northwest Power Act. As a result, coordination is easier to state than to achieve. Concerns about coordination were voiced repeatedly by witnesses who testified at a field hearing of the House Merchant Marine & Fisheries Committee on August 10, 1993 in Portland.

The Council's statutory authority is limited. We must rely on the cooperation of federal, state and tribal agencies to implement the program, and the cooperation is often difficult. Some see our program as merely a list of actions, a menu from which to pick and to choose for selective implementation. Along this line, you asked for comment on whether the Council's role should be expanded or contracted. At the very least, it may be appropriate to strengthen congressional oversight of implementation of the Council's fish and wildlife program. This would help ensure that the relevant federal

agencies are fulfilling their obligations under the Northwest Power Act.

Regarding the Council, some in the region have suggested that our role in watershed planning and policy development should be expanded, along with our role in setting policy for river operations. We have not taken a position, but we believe these concepts should be explored further.

There is no doubt that congressional oversight of implementation played a major role in our regional successes so far. We welcome this task force's oversight of our activities, of federal agencies and others to implement our *Strategy for Salmon*. We will keep Congress informed about implementation through monthly reports.

There is some good news to report. Last month the Directors of the Washington Department of Fisheries and the Oregon Department of Fish and Wildlife reported that Snake River salmon runs appear to be rebuilding. The Directors reported that they have been able to reduce harvests to levels below those called for in the *Strategy for Salmon*. Together the Council and the agencies that implement our program appear to be having a positive impact on salmon survival.

Through cooperative efforts, river conditions for salmon were improved in the recent drought years. Fish harvest was reduced, water was stored and then delivered to enhance fish migration, new or improved bypass and collection facilities are being installed at the major dams, water diversions are being screened in areas where depleted wild salmon runs spawn.

Despite this optimism, however, there are concerns about our strategy. I have already expressed the Council's concern about fragmented implementation. I would like to briefly address another concern.

Some measures in the strategy are based on science that is continuing to develop. While this has been a source of controversy, we recognize that the region cannot expect perfect knowledge before taking action. We must act on the basis of the best scientific information available. The Council will bring together an independent panel of scientists to evaluate the strategy and also to advise us on critical areas of uncertainty. This scientific review panel will identify and revise our time keyed to uncertainties associated with our program measures. Meanwhile, the Council will continue to work in partnership with State, tribal and Federal governments, and we are committed to rebuilding objectives that protect and enhance weak stocks while meeting harvest objectives.

In conclusion, Mr. Chairman, the Council is committed to seeing the Columbia River basin fish/wildlife program implemented—all of it. We are committed to working with Bonneville, state and federal fish and wildlife agencies, Columbia basin Indian tribes and others to see the work gets done and that the region continues to make progress on improving survival.

Now we would be happy to answer any questions that you may have.

[Prepared statement of Mr. Grace and attachments follow:]

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**Testimony of the Northwest Power Planning Council
Before the
Bonneville Power Administration Task Force
Committee on Natural Resources
United States House of Representatives**

**Boise, Idaho
September 24, 1993**

Good morning Chairman DeFazio, and members of the Task Force. My name is Stan Grace, and I am Chairman of the Northwest Power Planning Council.

Thank you for the opportunity to present the Council's views on the recovery of salmon stocks in the Columbia River Basin and, particularly, whether appropriate measures are being proposed and undertaken to protect, mitigate and enhance salmon populations affected by the development and operation of hydroelectric facilities on the Columbia River and its tributaries.

The Council, the Northwest Power Act and the *Strategy for Salmon*

Ever since the Northwest Power Act was passed in 1980, the Columbia River Basin's fish and wildlife have been the subject of increasing attention, not just from groups that are dependent on the river or its fish, but from the public at large. Since the Northwest Power Planning Council approved its first Columbia River Basin Fish and Wildlife Program in 1982, significant efforts and money have been directed toward protecting and rebuilding salmon and steelhead populations. Some promising increases were seen in the mid-1980s, but disappointing declines were again evident in the early 1990s. Our efforts have not been enough to rescue some species. Some of the region's salmon and steelhead runs have been declining at alarming rates.

In 1991, the National Marine Fisheries Service designated Snake River spring/summer and fall chinook as threatened species and Snake River sockeye as an endangered species. These declarations triggered a set of actions required under the federal Endangered Species Act of 1973, including development of a recovery plan.

Under the Endangered Species Act, recovery plans focus only on the petitioned animals. The Northwest Power Act takes a broader view, directing the Northwest Power Planning Council to develop a program to protect, mitigate and enhance *all* fish and wildlife populations affected by hydroelectric facilities on the Columbia River and its tributaries, including related spawning and rearing habitat.

Following the petitions to protect Snake River salmon under the Endangered Species Act, the Council and the region accelerated efforts to improve salmon survival. First, the region's Governors and Senator Mark Hatfield convened a Salmon Summit in late 1990. The summit, made up of the user, policy and interest groups connected with the Columbia Basin's waterways, came up with critical short-term measures that were implemented in 1991 to stem further decline. Those measures were intended to buy the region time. From there, the Northwest Governors asked the Council to take up where the Salmon Summit left off by initiating a process to devise a comprehensive salmon program in the form of amendments to the Columbia River Basin Fish and Wildlife Program.

The product of this exercise is the 1992 *Strategy for Salmon*, a long-range plan to improve salmon survival at every stage of the salmon life cycle. The strategy includes measures to amend river operations, increase salmon productivity, repair salmon habitat and refine salmon harvests. It is designed to balance competing river uses while strengthening and rebuilding salmon and steelhead runs throughout the basin. The Council's aim is to make future Endangered Species Act petitions unnecessary, and ultimately to produce healthy and harvestable populations of fish.

It is critical to the recovery of the listed Snake River salmon, and to our regional effort to improve the survival of all salmon runs in the Columbia Basin, that the obligations of the Endangered Species Act and the Northwest Power Act be met in a unified manner by the relevant agencies. The Council believes these two federal laws complement each other. They should not be seen as working at cross purposes.

To that end, one concern I will share with you in more detail later in my testimony is how the salmon strategy will fit with the recovery team's plan for Snake River salmon. We've discussed this issue with the recovery team and with the Fisheries Service. The recovery plan aims just at the listed runs. The Council's salmon strategy aims to improve the survival of all weak runs in the basin. We need to work closely with the Fisheries Service to

ensure that the recovery plan does not create confusion or delay full implementation of the salmon strategy.

The Council firmly believes that a regionwide cooperative effort is clearly preferable to federal or legal intervention that could lead to extensive and expensive conflict, litigation and economic disruption.

The key now is implementation. We welcome this committee's oversight of the activities of federal agencies and others to implement the *Strategy for Salmon*. We will keep Congress informed about implementation through monthly reports.

Responses to Chairman DeFazio's questions

1. The Council's *Strategy for Salmon* is an appropriate and sufficient framework for salmon recovery efforts in the Columbia River Basin.

To be effective, any fish and wildlife program must be more than a collection of measures. Individual efforts must be coordinated and measures integrated into an overall plan designed to achieve specific goals and objectives.

To achieve this coordination, the *Strategy for Salmon* does three things: First, the program is focused and organized around a framework, which consists of an overall goal of doubling salmon runs without loss of biological diversity. In the framework, the strategy establishes interim rebuilding targets for naturally spawning Snake River salmon. These numbers are: 1) 50,000 spring chinook; 2) 20,000 summer chinook; 3) 1,000 fall chinook. Second, the salmon strategy establishes a coordinated process in which implementing agencies can implement program measures in a logical way. Third, reflecting the Council's long-standing commitment to adaptive management, the program establishes a process to monitor and evaluate program implementation in a way that adds systematically to the region's knowledge of salmon and steelhead recovery.

An effective salmon program also must rely on the best available scientific knowledge. The Northwest Power Act requires the Council to develop its fish and wildlife program from recommendations from fish and wildlife agencies, Indian tribes and interested citizens. The Council also is required to select those recommendations that are based on the best available scientific knowledge. However, this is difficult and sometimes contentious because scientific knowledge in certain key areas is not well developed.

Finally, because scientific knowledge constantly is changing and many salmon issues are uncertain, the salmon strategy calls on the region to monitor actions and make adjustments where advisable. Monitoring and evaluation may be expensive, and results may

be slow, but success over the long term may depend on the region's willingness to take these steps.

Strengths of the *Strategy for Salmon*

With the Snake River endangered species listings, it became clear that a program to improve salmon survival should take a broad view, one that involves and seeks improvements in all river uses: power production, flood control, agriculture, navigation, water supply, recreation, land development practices and fishing. When the Northwest Governors, Congressional delegation and the National Marine Fisheries Service looked to the Council to come up with a comprehensive recovery plan, they also asked the Council to assume this broader role. In response the Council developed an integrated plan that seeks contributions from all river users and land managers. The Council adopts an ecosystem approach in the salmon strategy, aiming actions at all impacts on salmon survival and providing the mechanisms, discussed above, to evaluate this approach.

Weaknesses of the *Strategy for Salmon*

While you will undoubtedly hear from others who believe the strategy is weak in one regard or another, I would like to point out two weaknesses that concern the Council. First, we are concerned about fragmented implementation of the strategy. The strategy attempts to strike a balance in funding of the measures, assigning to ratepayers the share that accounts for damage caused by the hydropower system and other costs to appropriate state and federal agencies and river users. Bonneville originally told the Council it has not been able to fully implement its share of the program, citing its current financial difficulties that resulted from drought and reduced income from power sales. I will discuss this point further in response to question 5. Appropriations to the other federal agencies are critical. This year Congress directed about \$100 million -- much of this will be repaid by Bonneville ratepayers -- to the salmon recovery effort. Bonneville funding is not the only problem. Many parties have been either unwilling or unable to fully fund their share of implementation.

The Council's statutory authority is limited. We must rely on the cooperation of federal, state and tribal agencies to implement the program, and this cooperation has been difficult. Too many see our program as merely a list of actions -- a menu -- from which to pick and choose for selective implementation. The Council is attempting to resolve these problems through rigorous monitoring and evaluation and by bringing together parties to the disputes. This process has led to resolution of disputes regarding flows, harvest rates and hatchery policies. I will discuss this issue in more detail in response to question 4. However, the difficulty in achieving full and timely implementation of our strategy remains.

Second, some measures in the *Strategy for Salmon* are based on science that is continuing to develop. However, the Council recognizes that the region cannot expect

perfect knowledge before taking action, and must act on the basis of the best scientific information available at that time. To help identify areas where we most need to improve our understanding, the *Strategy for Salmon* calls on an independent scientific group to identify "key uncertainties" -- questions whose answers are most crucial to the success of program measures in rebuilding salmon and steelhead populations

2. Most of the *Strategy for Salmon* is being implemented, but we are concerned about the timeliness of implementation coordination between federal and state agencies.

At minimum, our answer to this question focuses on implementation by Bonneville because Bonneville is the focus of this task force. But the Council also monitors implementation of the salmon strategy by all agencies. We produce a monthly status report of implementation. I have included a copy of our latest report with this testimony as Appendix One.

In April 1993 the Council conducted its first Salmon Strategy Progress review, a review of implementation progress that we intend to convene annually. At that time, we estimated that 90 percent of the salmon strategy was being implemented. The meeting included policy leaders from all agencies that are charged with implementing the strategy and from the region's Indian tribes, utilities and federal and state fish and wildlife agencies. Some of the key commitments made at the meeting included:

- River operators agreed to provide increased Snake River flows in the summer to help salmon;
- Fish and wildlife agencies supported a controversial study -- it's now under way -- of the relationship between increased flows and increased fish survival;
- The Corps of Engineers, Bonneville and the National Marine Fisheries Service agreed to continue the series of river drawdown evaluations in the salmon strategy.
- Washington and Oregon reported that salmon harvest has been reduced to levels below those called for by the Council, and the states agreed to further investigate alternative techniques of commercial fishing.

About two months after the Progress Review, however, Bonneville Administrator Randy Hardy announced a rate increase for the 1993-1995 rate period that will average about

15 percent. In addition, Hardy reduced the agency's fish and wildlife budget for Fiscal Year 1994 from \$95 million to \$80 million.¹

We were concerned about the impact on salmon measures. The initial budget overlooked certain measures important to the recovery of weak stocks. In a related budget matter, Mr. Hardy expressed a clear intention to delay funding new resident fish and wildlife measures, which the Council released in draft form for public comment this summer, until 1996.

These proposals appeared insufficient to implement the fish and wildlife program, and the Council advised Bonneville that unless these proposals were changed, they could lead to a Council determination that Bonneville's actions are inconsistent with the program. The Council also expressed this concern to the Northwest Congressional delegation and notified the Federal Energy Regulatory Commission that we may choose to file a request for late intervention in the Commission's process of reviewing Bonneville's rate proposal. The Commission must approve Bonneville's rates before they go into effect.

The Council is not seeking an unlimited amount of funding for the fish and wildlife program. Nor is the Council attempting to set the specific level of Bonneville's budget. It is, however, the Council's responsibility to specify the actions needed to protect, mitigate and enhance fish and wildlife, and it is Bonneville's obligation to develop a budget sufficient to implement these actions. We believe it is dangerous and ultimately more expensive to delay implementation of the Council's *Strategy for Salmon* and to defer important resident fish and wildlife mitigation until 1996.

Last July, when Bonneville announced its rate increase, critical actions in the Council's *Strategy for Salmon* were delayed or not funded. These included:

- Setting rebuilding targets for each run or naturally spawning salmon;
- Identifying the status and population trends of naturally spawning salmon;
- Scheduling pilot projects for new fishing techniques in the lower Columbia River in order to protect weak stocks such as Snake River chinook and sockeye;

¹ This is not the total cost of the program, however, as lost revenues also are included. Increasing water storage to provide increased spring flows means that dam operators forego some hydropower generation during winter months. The Council estimates that the value of this lost hydropower production would average \$40 million to \$70 million annually. The cost could be higher or lower depending on water conditions. In 1993, for example, the total cost of the Council's recommended spring salmon actions, not counting the cost for the existing water budget volume or the cost of fish spill, was \$74 million. In 1992, the amount was about \$10 million. In wet years, the cost could be zero. In extremely dry years, it could be as high as \$190 million.

- Reviewing the status of Pacific lamprey, an important cultural resource to mid-Columbia Indian tribes and a potentially threatened species;
- Screening more irrigation ditches to keep young salmon from wandering up them and dying in fields;
- Assessing the impacts of specific hatcheries on naturally spawning salmon;
- Funding an independent scientific group to provide unbiased evaluations of program effectiveness.

We appreciate the financial difficulties that led to the current rate increase, and we have assisted in this difficult circumstance by recommending and endorsing specific cuts that totaled more than \$10 million. However, we also have made it clear to Bonneville officials that the failure to fund the *Strategy for Salmon* and the planned two-year delay in resident fish and wildlife mitigation are ill-advised. Delaying these investments in fish and wildlife mitigation will only increase future costs while making it more difficult for the region to move ahead with this important effort.

Bonneville recently committed to fully implement the *Strategy for Salmon* in 1994. Meanwhile, we are continuing to discuss funding of resident fish and wildlife measures. The Council is concerned about Bonneville's decision to postpone on-the-ground implementation of new resident fish and wildlife measures until 1996. We are in the process of deliberating on amendments to the fish and wildlife program in this area, and we have noticed that the amendment applications we are reviewing address important mitigation efforts that have gone unaddressed for many years. A large number of the amendment proposals address weak fish and wildlife populations including bull trout, upriver sturgeon, westslope cutthroat trout, bald eagles and sharp-tailed grouse as well as critical habitats in the Columbia Basin.

The Council expects to act on resident fish and wildlife amendments next month (October 1993). For that reason, we have encouraged Bonneville to re-evaluate its position that only planning and environmental analysis can be pursued in Fiscal Years 1994 and 1995.

One reason for continued progress on salmon recovery efforts -- and in some instances, the lack of progress -- is the degree of cooperation and coordination between relevant agencies. I will discuss this issue in response to Question 7.

3. **The Council is not an implementing agency, but the Northwest Power Act gives federal agencies certain obligations to protect fish and wildlife that can substantially be met through implementing the Council's fish and wildlife program.**

Under Section 4(h) of the Northwest Power Act, the Council is given broad authority to develop fish and wildlife measures for implementation by Bonneville and other federal agencies that are "... responsible for managing, operating or regulating federal or non-federal hydroelectric facilities located on the Columbia River and its tributaries." This authority is not comprehensive, and the Council has no defined statutory role in actions that are within the jurisdiction of states or the Indian tribes.

While the Council can develop a comprehensive program, it can implement it only with broad cooperation. The Council can guide, but not command, federal river management and licensing. The investment of Bonneville hydropower revenues to help fish and wildlife must be "consistent" with the Council's program, but Bonneville actually writes the checks. The Council has no legal authority over hatcheries, habitat management or water rights. In addition, not all federal agencies that implement our program are covered by the Northwest Power Act -- for example, those responsible for hatchery management, harvest or habitat protection and restoration.

One factor that limits the success of salmon recovery efforts is the dispersion of authority among federal and state agencies in the Columbia River Basin. The Council provides the forum for developing the program, but increased coordination and oversight would help implementation of the program.

The Endangered Species Act listings create new incentives to make this arrangement work. Positive momentum toward species recovery is absolutely essential if severe disruption in the region's largest fishery, power plant, navigation channel, and source of irrigation water is to be avoided. Genuine recovery requires a strong commitment to coordinated, scientifically based action.

The Council believes that there is a pressing need to implement an effective monitoring and evaluation program to ensure that these objectives are achieved. A monitoring and evaluation program should enable us to monitor the status of fish populations, track agency performance in implementing recovery measures, and develop a series of benchmarks with which to evaluate progress toward recovery. Developing such a program in this pluralistic setting will require commitments from a wide range of parties, and help from Congress may be needed.

4. **Budget and staffing constraints at federal and state fish and wildlife agencies, and Bonneville, have slowed implementation of the *Strategy for Salmon*, but the Council also recognizes that the implementation schedule is ambitious.**

In response to Question 2, I discussed our concerns about the adequacy of Bonneville's funding to implement the fish and wildlife program. I also discussed our concerns about coordination among federal agencies that implement the salmon strategy.

In response to the current question, it is important to note that while the various federal agencies have committed to implement the strategy, these same agencies also say they are having difficulty living up to their commitments because of inadequate staffing or budgets or both. For example, the Forest Service is behind schedule in its review and modification of land management practices, the Corps of Engineers has slipped by six months its evaluation of Snake and Columbia river drawdown alternatives, and the states are slow to explore harvest alternatives. In each instance, budget and staffing levels were cited as the major reasons for delay.

We believe the federal agencies have the resources and staff to move more quickly on salmon rebuilding efforts, but we also understand that some of the implementation work, such as the Corps' analysis of drawdown alternatives, relies on information being developed in other work in progress. We understand that conflicts like this probably are inevitable, and that we set an ambitious time schedule for implementing the salmon strategy. But we also believe that this work must get the highest priority, and that it must proceed as expeditiously as possible. These are important actions that we believe are necessary to implement the salmon strategy. In short, the fish cannot wait for the laborious, slow progress of government as usual.

At the same time, however, I do not want to leave the impression that there has been no progress. As I mentioned earlier, we estimated last April that most of the *Strategy for Salmon* is being implemented. The most costly measures, which are the additional flow improvements and modifications at mainstem dams, began last year. The states successfully reduced salmon harvest levels this year, in accordance with the salmon strategy. Work began on improving hatchery practices and on improving land management in prime areas of salmon habitat. Model watersheds were designated in Idaho, Oregon and Washington, and work is under way to improve salmon habitat.

All of this work is progressing. We will continue to call attention to the need to complete these efforts quickly, and we appreciate the continued support of Congress in this regard.

5. **Bonneville's fish and wildlife funding appears to be the unfortunate victim of revenue fluctuations. As revenue declines, so does program funding. The agency should consider procedures to ensure financial stability for the program, such as creating a reserve fund, rate adjustment clauses and other forms of flexibility.**

Protecting and enhancing fish and wildlife in the Columbia River Basin no longer is a discretionary budget item; it is a firm obligation, a cost of doing business in the modern Northwest. Protecting and enhancing fish and wildlife is a legitimate and necessary cost of operating the hydropower system.

In this regard, the region expressed a strong preference for clear goals and cost-effective measures to increase salmon survival. The Council tried hard -- and succeeded, I think -- to comply with these demands in crafting the *Strategy for Salmon*. Yet Bonneville apparently is willing to curtail fish and wildlife measures when revenues decline.

Savings and efficiencies are important. Bonneville should pursue savings in consultation with the region, and we committed to work with Bonneville to ensure that programs are delivered as efficiently as possible. At the same time, however, program levels must be adequate to meet Bonneville's obligations under the Northwest Power Act. These obligations include a requirement to acquire least-cost resources and to protect, mitigate and enhance fish and wildlife, including related spawning grounds and habitat, of the Columbia River and its tributaries.

While we agree with Bonneville that agency costs should be reduced by introducing efficiencies and cutting programs no longer needed, we cannot agree to selective implementation of the Council's program. The drought should not be an occasion for Bonneville to carve away Council policies and mandated programs simply because some customers disagree with them. In particular, we caution against the impulse to respond to short-term, drought-induced, cash flow constraints by cutting investments in our future, cuts that will result in higher costs for future customers and for the people of this region. Injudicious cuts in the fish and wildlife program will cost the region more in the long run if we have to accelerate our efforts in order to "catch up" with fish populations that may be slipping toward extinction.

We understand that Bonneville's short-term cash flow needs are real. We believe they can and should be addressed by cash-flow budget tools such as program deferrals (for expenditures that are not time-critical) rather than program elimination. We have committed to work with Bonneville to identify such deferrals in the conservation and fish and wildlife budgets. In addition, we advocated that Bonneville also consider employing a one-year drought surcharge to bridge the drought-induced cash flow gap. Both deferrals and surcharge can be revisited next year depending on water conditions. Bonneville also should investigate approaches to financial management that would provide the budget flexibility to ensure full funding of the fish and wildlife program. The program should not be used as a shock absorber when income from power sales is down as the result of poor water conditions or poor markets for power.

The Council has consistently advocated the creation of a reserve account to ensure that Bonneville would not have to defer implementation of the fish and wildlife program or the Northwest Power Plan.

Protecting Columbia Basin fish and wildlife resources with the comprehensive approach adopted by the Council may help forestall future endangered species listings. A strong, continuing commitment to protect, mitigate and enhance fish and wildlife while pursuing financial efficiencies will reduce long-term environmental costs for the region and moderate the impact on Bonneville's budget, as well.

6. **No single forum exists to coordinate federal and state water management in the region. State and federal water managers have taken important steps to provide and protect increased flows for salmon, but changes in federal and state policy may be needed in order to meet future challenges. For example, a broader role for the Power Planning Council in regional watershed planning and policy development should be explored.**

Water policy and administration in the Columbia River Basin is fragmented among many state and federal agencies and private water users. Management of the Columbia River has been dominated by federal agencies -- the Bonneville Power Administration, the Army Corps of Engineers and the Bureau of Reclamation -- whose primary missions are hydropower generation, flood control, navigation and irrigation. On the Snake River, most of the federal projects are operated by the Bureau of Reclamation for irrigation purposes and in accordance with state water law. Water diversion permits are administered by each of the states through their water agencies, each of whom has different rules and record-keeping practices. There are also many public and private dams and diversions on the mainstems of the rivers and on tributaries. In the area of water quality, there is a similarly complex assortment of regulatory bodies.

Since the demise of the Pacific Northwest River Basin Commission, there has been no single forum to coordinate water management in the region. The Northwest Power Planning Council, whose organic statute withholds any authority over water law, water rights or water administration, has been working to coordinate water management activities of the federal agencies (Bonneville, the Corps of Engineers and the Bureau of Reclamation) for more than ten years. During the 1980s, however, state water management agencies were not active participants in salmon recovery. While we have not taken a position on whether the Council's role in watershed planning and policy development should be expanded, we believe this concept should be explored further.

In the *Strategy for Salmon*, the Power Planning Council sought to bring state water policy into the salmon recovery process. The Council asked the states to protect instream

flows for salmon, find ways to acquire at least another 1 million acre-feet of water in the Snake River Basin to help salmon, explore an interstate agreement to protect augmented flows from appropriation, and investigate other measures.

The states have taken a number of steps to respond:

- Idaho, Washington and Oregon have taken temporary steps to cease (in Idaho's case) or limit (in the case of Oregon and Washington) new water diversions in anadromous fish areas. The states also have sought funding for additional enforcement activities, with varying success. Washington has developed a "Trust Water Rights" program to protect conserved water so that it stays in the stream to benefit fish and other instream uses. Oregon has adopted a more protective water availability standard for new water permit applications.
- The state water managers organized a Snake River Water Committee, which has prepared a work plan to evaluate options for securing at least an additional million acre-feet of water for salmon. The work plan is still awaiting Bonneville funding.
- Since early 1992, water managers of the four Northwest states have met regularly to discuss interstate aspects of water management, the possibility of an interstate agreement to protect salmon flows, and the need for a regional water availability assessment.

The Council asked the U.S. Environmental Protection Agency to take the lead in coordinating water quality issues relating to Columbia River fish and wildlife. In response, EPA completed a water quality summary report in June 1992. The report recommends several steps to address water quality issues, including: coordinated, basin-wide data management; research and evaluation on water quality problems affecting fish and wildlife, and a project to address water temperature problems in the Grande Ronde River in Oregon. The EPA has continued to coordinate these activities through the Columbia River Water Management Group. However, federal funding is needed to continue this work.

These are beginning steps, on which we hope to build. We still are far from having coordinated water administration of the Columbia-Snake system. Improved interstate management and enforcement will require continuing commitments by the states, and support from the federal government. Issues remain regarding mainstem water availability, the nature and extent of existing water diversions, the states' ability to protect fish flows from diversion, and the role of market factors, conservation incentives and regulation in increasing stream flows. Funding to help develop coordinated management and analytical tools will be required. Changes in federal and state policy may be needed to provide and protect increased flows for salmon. Progress in identifying and addressing water quality will

require federal funding. In short, while important steps have been taken, real challenges lie ahead.

7. Better regional coordination among federal, state, tribal and private entities would improve the region's effort to increase salmon survival. We offer the following comments on alternatives discussed in Chairman DeFazio's letter:

Regional coordination:

One purpose of the Northwest Power Act is to "...provide for the participation and consultation of ... Federal and State fish and wildlife agencies and appropriate Indian tribes ... in the development of regional plans and programs related to ... enhancing fish and wildlife resources" (Section 2.(3) and 2.(3)(A)). Later, the Act says that the Bonneville Administrator and federal river management agencies shall consult with federal fish and wildlife agencies and Indian tribes "... and shall, to the greatest extent practicable, coordinate their actions" (Section 4.(h)(11)(B)).

While this would appear to be clear direction to the federal agencies to coordinate their actions under the *Strategy for Salmon* and fulfill their responsibilities under the Act, it is easier to state the need for coordination than it is to achieve. The apparent lack of coordination was mentioned repeatedly by witnesses who testified at a Portland field hearing of the Merchant Marine and Fisheries Committee of the House of Representatives on August 10, 1993. We will continue to work in partnership with state, tribal and federal governments, and we are committed to rebuilding objectives that protect and enhance weak stocks while meeting harvest objectives.

We recognize that there are important federal interests in the Columbia River. We have committed to work with the federal agencies to integrate the Council's processes with those of the National Environmental Policy Act and Endangered Species Act. We recognize that the decline of the salmon runs, particularly Snake River chinook, poses special problems for Indian tribes to whom the U.S. government has special responsibilities. The Council's program must be consistent with the rights of these tribes. We are committed to meeting our own responsibilities and to helping the federal agencies meet theirs while addressing the problems of weak stocks.

As I mentioned earlier, the Council believes it is important for the region to address the Endangered Species Act, the Northwest Power Act and federal trust obligations to the tribes in a unified and consistent manner.

Additional public involvement in existing federal processes

The Northwest Power Act specifically directs the Council to involve the public in our decision making. For example, at Section 4.(h)(4)(B) and 4.(h)(5), regarding the fish and wildlife program, the Act says the Council "... shall provide for public participation and comment regarding the recommendations (for program measures) and supporting documents ... and shall develop a program on the basis of such recommendations" and other information obtained through public comment and participation. The Endangered Species Act also allows for public participation, but participation is more restricted than under the Northwest Power Act.

We see our *Strategy for Salmon*, developed with regional input, as a foundation for the National Marine Fisheries Service in devising its recovery plans for salmon. Without the salmon strategy, the federal government or courts would have been left to impose a plan of their own. A regional plan, based on extensive input from all the basin's interest groups as well as Northwest citizens, has the advantage of reflecting the unique values, perspective and interests of the region.

Currently, the Endangered Species Act has limited avenues for nonfederal parties to be involved in the Act's processes. The agency administering the process must provide public notice and an opportunity for comment on proposed listings, critical habitat designations and recovery plans. However, currently only federal agencies have a right to participate in the federal consultation process under Section 7 of the Act. The Western Governors' Association contends that the Endangered Species Act should require much more extensive participation by the states in all of the Act's processes. A similar argument could be made by the Indian tribes who manage fish and wildlife resources, both on and off reservations. Particularly for an entity like the Council, a more meaningful role in Section 7 deliberations, in recovery planning and in other such processes would seem appropriate.

One virtue of the federal consultation process under Section 7 is its brevity. Timelines are short and demanding, and they would be strained by significant public participation requirements. However, we believe that greater openness in all consultations -- harvest, habitat, river operations and production -- would benefit implementation of the Act.

To that end, we support efforts by Rollie Schmitten, Northwest regional director of the National Marine Fisheries Service, to open up the Section 7 process to the Council, states and Indian tribes, and we hope the other federal agencies will implement his suggestions. We are confident that a more open process that respects the purposes and time requirements of the Endangered Species Act can be developed. For example, in Colorado, the Bureau of Reclamation and the U.S. Fish and Wildlife Service were able to work with state, tribal and other interests while fully complying with the Endangered Species Act. It may take creativity to develop such a process here, but it need not be at

the expense of the Endangered Species Act. The salmon listings pose extraordinary challenges for all of us, and we must employ extraordinary measures in response.

Meanwhile, river operators and the Council are discussing opportunities to provide more involvement in annual river operation decisions. The Council's program has opened this decision-making to a degree through the Fish Operations Executive Committee, but those discussions focus on fish needs. A broader public review should encompass all river uses, including recreation, irrigation, navigation and flood control.

Changing the Northwest Power Planning Council

In response to Question 3, I briefly discussed the Council's authority under the Northwest Power Act. In those areas where the Council has authority, we expect the fish and wildlife program to be implemented by the appropriate agencies. In those areas where the Council lacks explicit authority, the program is a strong recommendation. The Council urges implementation of all measures on the grounds they make sense and could forestall more stringent measures that could be imposed from outside the region.

We believe the Council provides for a balanced regional role in decision-making about salmon recovery measures. In this regard, our relationship with Bonneville and the other federal agencies is best characterized as a creative tension. Bonneville, as a federal power marketing agency, is naturally concerned by measures to improve salmon survival that have impacts on the hydropower system. The Council, however, has a broader view, addressing all impacts on salmon survival at every stage of the life cycle and recognizing that dams are the greatest source of salmon mortality. At the same time, the Act mandates us to strike a balance between the needs of fish and the needs of hydropower. Specifically, the Act mandates that we include in our program measures that protect, mitigate and enhance fish and wildlife while assuring the region of an adequate, efficient, economical and reliable power supply, and we have done that.

In investigating the question of whether the Council's authority should be expanded or contracted, Congress should pay particular attention to how well the federal agencies respond to our electric power plan and fish and wildlife program. At the very least, it would be appropriate to strengthen Congressional oversight of implementation of the Council's fish and wildlife program. This would help ensure that the relevant federal agencies are fulfilling their obligations under the Northwest Power Act. Some in the region have suggested that the Council's planning role should be expanded to include setting policy for river operations.

As for Bonneville, the Act says the Administrator shall exercise his responsibilities in a manner consistent with the Council's fish and wildlife program and the purposes of the Act. Bonneville and other federal agencies responsible for managing, operating or

regulating federal or non-federal hydroelectric facilities in the Columbia Basin are required by the Act to exercise their responsibilities consistent with the purposes of the Act and to take the Council's program into account at each relevant stage of decision-making to the fullest extent practicable. Exercising these responsibilities involves complex, controversial policy issues -- hatchery operations, habitat restoration and power system impacts, to name a few.

If these issues are not dealt with in the region, they will inevitably demand greater attention from Congress. Congress created the Council, in large part, to deal with these issues in the region. If that remains Congress's intention, and I assume it is, then the Council needs stronger support from Congress. We need Congressional support to ensure that all federal agencies with river and management responsibilities remain involved in the effort to improve survival of the basin's fish and wildlife and that, as the Act says, they coordinate their actions to the greatest extent practicable. Congress must hold these agencies accountable when they fail to take the Council's fish and wildlife program into account to the fullest extent practicable in their decision-making.

We welcome Congressional oversight of implementation of the Council's fish and wildlife program. We are continuing to improve our monitoring of program implementation, including annual reviews that detail successes and failures. We initiated annual program reviews involving the top regional administrators. As a result, we intend to be more responsive to implementation problems and to raise the most difficult of these to the Congressional level quickly, when appropriate. The regional effort to improve the survival of Columbia Basin fish and wildlife can only benefit from attention and support from Congress.

Incorporating salmon recovery efforts into the Pacific Northwest Coordinating Agreement

The Pacific Northwest Coordinating Agreement is an agreement between federal and nonfederal owners of hydropower generation on the Columbia River system. It governs the seasonal release of stored water to obtain the maximum energy subject to other uses.

Discussions are under way regarding the incorporation of salmon recovery actions into the Agreement. In general, the Council supports this effort.

The Columbia River and its tributaries make up an extremely complex operating system. Flow, velocity and temperature improvement measures contained in the *Strategy for Salmon* have a substantial impact on operation of the Columbia River hydropower system. We believe that given more time and experience, it is likely that additional refinement of these measures can be achieved, resulting in greater operational efficiency and better coordination between the needs of fish and other uses of the river.

The salmon strategy called on the Council to create the Fish Operations Executive Committee. One of the Committee's charges is to develop accounting procedures to improve management of water for fish in the Snake and Columbia rivers. The Committee oversees an annual policy and technical process to address flow and temperature regimes and reconcile measures in the strategy designed to achieve protection for salmon and steelhead.

Through this process, or through incorporation of salmon recovery efforts into the Coordinating Agreement, it is important to recognize that fish share in the objectives of river management along with other river uses. In reviewing and adopting flow measures, costs and benefits of all uses of the river must be considered.

Lump sum transfer from Bonneville to fish and wildlife agencies

This proposal goes to the heart of Bonneville's management of the Council's fish and wildlife program. Some of Bonneville's critics say the agency should get out of the implementation business and simply provide the money to appropriate agencies to carry out the work of rebuilding salmon runs.

The Northwest Power Act is neutral on this point. The Administrator of Bonneville must "... exercise such responsibilities, taking into account at each relevant stage of decision making processes to the fullest extent practicable, the program adopted by the Council ..." (Section 4.(h)(11)(A)(ii)) The Administrator also must "... use the Bonneville Power Administration fund ... in a manner consistent with ... the program adopted by the Council ... and the purposes of this Act" (Section 4.(h)(10)(A)) Finally, the Administrator must "exercise [his] responsibilities, taking into account at each relevant stage of decision making "to the fullest extent practicable" the Council's fish and wildlife program (Section 4.(h)(11)(A)(ii)) Conceivably, that could mean allocating funds to other agencies, through a contractual process, for example, to implement the Council's program.

The Council's chief concern with this approach is that the fish and wildlife program must be effectively managed, promptly implemented and rigorously evaluated. In the *Strategy for Salmon*, the Council calls for a stringent program of independent monitoring and evaluation of progress to ensure that the region's investment in salmon pays off.

If a lump sum were transferred by Bonneville to other implementing agencies, it would be critical that such a transfer be conditioned on 1) fully implementing the Council's program; 2) demonstrating an ability to carry out the work; 3) committing to monitor and evaluate the work effectively.

A new agreement, or a new regional entity

Bonneville, the Corps of Engineers and the Bureau of Reclamation work well together in managing the mechanics of river operations, but coordination of policy is another matter. In brief, there is no agreement in the region on whether a new agency or entity is needed or would be helpful. There are plenty of entities and agreements at work in the salmon issue already, but consistency and coordination among them remain elusive.

These three agencies need to improve their coordination of river operations and salmon recovery efforts with other federal agencies, including the National Marine Fisheries Service and the U.S. Fish and Wildlife Service. Ideally, the agencies should represent a unified federal front to carry out their responsibilities under the Northwest Power Act -- to protect, mitigate and enhance fish and wildlife of the Columbia River Basin. At the same time, the federal agencies must continue to respect their partnership with the states and Indian tribes and maintain allegiance to their common constituency, the citizens of the United States.

8. **The United States government has trust obligations to Indian tribes of the Columbia River Basin. Courts repeatedly have upheld hunting and fishing rights guaranteed by treaties signed with these tribes more than 100 years ago. All federal agencies must respect the government-to-government relationship between the United States and the region's Indian tribes.**

In devising the Columbia River Basin Fish and Wildlife Program, the Council is directed by the Northwest Power Act to "... request in writing ... from the Federal and the region's State fish and wildlife agencies and from the region's appropriate Indian tribes ..." recommendations for measures to include in the program. In this regard, the Act recognizes tribal, federal and state governments as co-equal managers of the region's fish and wildlife. Similarly, the Council recognizes that its fish and wildlife program must be consistent with the rights of these tribes. The Council is committed to meeting its own responsibilities and to helping the federal agencies meet theirs, while addressing the problems of weak stocks.

In 1976, the Solicitor of the Interior held that the Bonneville Administrator "... has a duty to take reasonable measures to protect Indian fishing rights from the consequences of ... his power marketing activities." The Solicitor added, "...this is a duty 'imposed upon the Administrator pursuant to law' within the meaning of the Federal Columbia River Transmission System Act." ²

² "Authority of Bonneville Power Administration to Participate in Funding of Program to Help Restore the Columbia River Anadromous Fishery," *83 Decisions of the Department of the Interior* 589, 601 (1976).

We are concerned that these special trust responsibilities and Northwest Power Act obligations are not eclipsed in the process of complying with the Endangered Species Act. The region is committed to a constructive and respectful relationship with the tribes. Over the past decades, Indian tribes and other fish harvesters have given up harvest on species after species, and we have yet to reverse this disturbing trend.

Boosting hatchery production may return more fish to tribal waters, but the increase in hatchery fish may harm wild runs in those same waters through increased competition among juvenile fish and increased harvest of adult fish. We have turned to the National Marine Fisheries Service for guidance on this question, and others, but the Service has been slow to respond. We need a dedicated effort to resolve issues that exacerbate conflicts between tribal rights and Endangered Species Act protection. It behooves the federal agencies to acknowledge their special obligations and to consider them carefully while implementing the Endangered Species Act and the Northwest Power Act.

Further, all federal agencies must respect the government-to-government relationship with Indian tribes. The Council, representing the Northwest states, repeatedly has recognized this relationship, conducting our tribal consultations in a spirit of respect for these sovereign nations. However, relations between the United States and tribal governments have been strained recently; we know that extra care is needed in order to continue a respectful relationship with the tribes.

In conclusion, Mr. Chairman, the Council is committed to seeing that the Columbia River Basin Fish and Wildlife Program is implemented -- all of it. We are committed to working with Bonneville, state and federal fish and wildlife agencies, Columbia Basin Indian tribes and others to see that the work gets done and that the region continues to make progress on improving salmon survival.

Thank you again for the opportunity to testify here today.

APPENDIX ONE, BOISE, IDAHO, SEPTEMBER 24, 1993

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OregonAagau Duncan
Oregon**Status of Implementing the Strategy for Salmon****September 8, 1993**

September's report reviews continuing Council staff discussions with Bonneville about the implementation of the Fish and Wildlife Program in 1994. In addition, two of the major implementors of the *Strategy for Salmon*, the Bureau of Reclamation and the Bureau of Land Management, have recently provided the Council overviews on their progress. Finally, the size of the fall chinook harvest was debated within the region during the past month. The Council heard discussion of the issue at its August meeting and has scheduled a presentation from the National Marine Fisheries Service at the September meeting in Pocatello. This report summarizes the dispute.

Bonneville provides budget flexibility for salmon measures but continues to defer resident fish and wildlife measures.

After the Bonneville rate decision reduced the fish and wildlife programs for the coming two years, Council staff have continued to meet with Bonneville staff to review the unfunded program measures and Bonneville's ability to make adjustments to implement them. Bonneville staff reported that they have some \$5 million in additional funds to focus on the unfunded or lagging salmon measures, but continue to insist that implementation of the resident fish and wildlife measures being considered in the Council's phase four amendments must be deferred until 1996. The Council is expected to adopt its final amendments for resident fish and wildlife in October.

Discussions of the unfunded *Strategy for Salmon* measures are reviewing the work being performed under existing projects and the potential for addressing some Council measures with existing funds. The talks fleshed out the projects that must be funded with the additions to Bonneville's budget. At the beginning of September, these discussion are not concluded.

The Bureau of Reclamation reported progress in water conservation activities.

The *Strategy for Salmon* set direction for long term improvements in Columbia River basin water use to improve conditions for fish. The Bureau of Reclamation initiated a series of water conservation demonstration programs in Idaho, Oregon,

and Washington. The Bureau prepares a summary of its progress for the Council every 6 months. August's reports reviewed the Bureau's actions specifically related to the *Strategy for Salmon* but included additional work throughout the region.¹

The Bureau has wrestled with different approaches to water conservation in three demonstration sites. It reports that some methods, such as lining irrigation canals, have run into local opposition, while new storage enjoys more support. The report did not reach conclusions, but instead focused on summarizing the Bureau's experience to date.

The Bureau of Land Management provided a summary of its salmon actions and cost estimates for future work.

The Bureau of Land Management oversees more than 1,000 river miles of salmon habitat in Oregon, Idaho and Washington. With the Forest Service it adopted a Policy Implementation Guide in 1991 which set specific objectives for improving salmon habitat management. These objectives were adopted into the *Strategy for Salmon*. In July, the Bureau of Land Management summarized its accomplishments².

The report states that the Bureau of Land Management completed a review of the existing land-use plans in the Columbia and Snake river basin in Oregon and Washington. Two plans in the Willamette basin will be updated as part of the overall western Oregon management update, but the remainder of the plans in the two states were determined to adequately address salmon objectives. Council staff will schedule a meeting with Bureau officials to discuss the details of this finding.

The Bureau intends to meet the 1996 goal for updating its management for salmon. It cautions that appeals and opposition from land users could slow its work and so is working on cooperative approaches. Earlier this year the Bureau estimated the cost of implementing its commitments to require over \$120 million in the next decade, including the costs for stream inventories, watershed restoration, monitoring and project maintenance. Council staff will seek more detailed information on these costs and the opportunities for coordinating this work with the Forest Service and other agencies.

The harvest managers, utilities and recreational fishing interests are debating the levels of the 1993 fall chinook harvest.

On July 28, 1993, the Direct Service Industries, the Public Power Council, the Pacific Northwest Utilities Conference Committee, Trout Unlimited and the

¹Bureau of Reclamation; *Pacific Northwest Region's Water Conservation Program Activities - an Overview/Update*; July, 1993.

²Bureau of Land Management; *The Road to Recovery: Anadromous Fish Program Accomplishments in Oregon, Idaho and Washington*; June, 1993. (The Bureau supplied this report to the Council in July. It is discussed in this report because August's report focused on Bonneville budget issues.)

Recreational Fishing Coalition released a letter challenging 1993 fall chinook harvest levels.³ They contended that the harvest was too high and would result in reduced fall chinook escapement to the spawning grounds above Lower Granite Dam. They believe the harvest should be reduced so that increasing numbers of fall chinook adults, which are listed as threatened under the Endangered Species Act, are allowed to pass Lower Granite Dam this year.

The harvest managers have responded that year to year fluctuations in spawning escapement should be expected and depend in significant part on the conditions that obtained during the juvenile migration of fall chinook four years prior to their return.⁴ They also contend that requiring harvest managers to guarantee increased escapement levels every year is unfair given that the river operators are not required to provide increased juvenile escapement every year. The managers also noted their belief that fall chinook runs are rebuilding in the Snake.

The Council has been assured by harvest managers that the 1993 harvest will be lower than the 55 percent harvest rate specified in the *Strategy for Salmon*. These issues will be discussed in more detail in the unified harvest report being prepared by the National Marine Fisheries Service. That report will be late. While scheduled for completion in the summer, NMFS has advised it will not be submitted to the Council until the end of the year.

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³Letter to Senator Hatfield, et.al., from William Drummond, et. al., July 28, 1993

⁴Letter to William Drummond, et. al. from Bob Turner, August 3, 1993; letter to William Drummond, et. al., from Ted Strong, August 2, 1993.

01-Sep-93

STATUS OF SALMON STRATEGY MEASURES

Measure	Pg	Entity	Action	Action Date
2.1B.1	19	Implementation Process	Submit final list of recommended populations for biodiversity baseline	12/31/92
Activity Summary:				Contacts:
1/1/93 Council staff and fish managers met to set work schedule				
3/25/93 Work plan is delayed				
5/4/93 At 1993 progress review, managers assured Council work will follow NMFS model coordination task				
2.2A.1	21	Fish Managers Implementing Agencies	Propose indicator populations for Snake River chinook	12/31/92
Activity Summary:				Contacts:
1/1/93 Council staff and fish managers met to set work schedule				
3/25/93 Work plan is delayed				
5/4/93 At 1993 progress review, managers assured Council work will follow NMFS model coordination task				
2.3.1a	21	Fish Managers Implementing Agencies	Submit schedule and workplan for developing rebuilding plans	1/15/93
Activity Summary:				Contacts:
1/1/93 Council staff and fish managers met to set work schedule				
3/25/93 Work plan is delayed				
5/4/93 At 1993 progress review, managers assured Council work will follow NMFS model coordination task				
2.3.1b	21	Fish Managers Implementing Agencies	Submit schedule and workplan for development of rebuilding schedules for Snake River chinook stocks	3/1/93
Activity Summary:				Contacts:
1/1/93 Council staff and fish managers met to set work schedule				
3/25/93 Work plan is delayed				
5/4/93 At 1993 progress review, managers assured Council work will follow NMFS model coordination task				

Measure	Pr	Entity	Action	Action Date
2.3.1c	21	Fish Managers Implementing Agencies	Submit schedule and work plan for development of rebuilding schedules for other regional stocks	1/15/95
Activity Summary:				
1/1/93 Council staff and fish managers met to set work schedule				
3/25/93 Work plan is delayed				
5/4/93 At 1993 progress review, managers assured Council work will follow NMFS model coordination task				
Contacts:				
2.4.1	22	Fish Managers Implementing Agencies	Submit final recommendations for performance standards for program measures	3/1/93
Activity Summary:				
1/1/93 Council staff and fish managers met to set work schedule				
3/25/93 Work plan is delayed				
5/4/93 At 1993 progress review, managers assured Council work will follow NMFS model coordination task				
Contacts:				
3.2	26	Fish Operations Executive Committee	Produce annual rivers operation plan	
Activity Summary:				
5/5/92 Coordinated plan of operations in place.				
11/6/92 Spring and summer plans were developed.				
2/23/93 Work group preparing 1993 coordinated plan of operations				
5/4/93 The 1993 migration season began without a coordinated plan of operations				
6/15/93 NMFS biological opinion set 1993 operations terms				
6/29/93 No CFO adopted in 1993. Operations proceeding under provisions of Council program and NMFS biological opinion				
Contacts:				
Jim Ruff				
NPPC				
503/722-5161				
3.2a	26	Council	Review implementation of river operations; determine needed revisions	
Activity Summary:				
Follows adoption of the coordinated plan of operations				
Contacts:				
Jim Ruff				
NPPC				
503/722-5161				
3.3A.1	26	Corps	Report to Council measures to remove limits to levels of operating Lower Snake dams	3/15/92
Activity Summary:				
12/4/92 Corps report scheduled for December 9 Council meeting.				
1/1/93 Corps gave Council interim report at 12/92 Council meeting				
8/4/93 Corps informed Council report will be delayed six months				
Contacts:				
Rudd Turner				
Corps				
503/326-3829				

Measure	Fy	Entity	Action	Action Date
3.3A.2	26	Bonneville Corps Reclamation	Operate Dworshak reservoir to improve salmon migration conditions	
Activity Summary:				
11/6/92		Dworshak was operated according to FOEC plan.		Contacts: Dan Daley Rodd Turner
5/4/93		Dworshak fish operations in place for 1993		Bonneville Corps 503/230-3810 503/236-3829
3.3A.3	27	Idaho Reclamation	Supply at least 90,000 acre feet of uncontracted storage for spring migrants	
Activity Summary:				
12/4/92		Idaho Power released water from Brownlee in July but the volume was not replaced from uncontracted storage space until late November.		Contacts: Fred Craze
5/4/93		Water is not available for spring release		Reclamation 208/334-1550
8/4/93		Water is being released		
3.3A.4	27	Bonneville Idaho Oregon Reclamation	Secure at least 100,000 acre feet from Snake River Basin for spring migrants	
Activity Summary:				
12/4/92		Water was not provided in 1992		Contacts: Fred Craze Dan Daley
2/23/93		Bonneville negotiating purchase of Oregon water rights in Snake basin		Reclamation Bonneville 208/334-1550 503/230-5810
3/29/93		Reclamation soliciting rental water in upper Snake		
3.3A.5	27	Bonneville	Fund an independent evaluation of the effectiveness of Snake water marketing and conservation measures in providing water for salmon	
Activity Summary:				
12/6/92		No action		Contacts: Dan Daley Bonneville
8/4/93		Bonneville budget doesn't fund this action		
3.3A.6	27	Idaho Oregon Reclamation	Establish Snake River Anadromous Fish Office	5/31/92
Activity Summary:				
6/1/92		Interagency water rental group formed into Snake anadromous fish office. Will add Oregon representative.		Contacts: Fred Craze BOR 208-334-1550

Measure	Pg	Entity	Action	Action Date
3.3B.1	27	Bonneville Corps	Report on effectiveness of cool water release measures on Snake adult passage	12/31/93
Activity Summary:				
3/31/92 NMFS is preparing guidelines for releases; use for testing may be constrained.			Contacts: Dan Daley Rudd Turner Jeff Osborne	503/230-5810 503/326-3829 206/690-2243
4/1/92 Report published on '91 model studies and operations.				
4/16/92 NMFS priority is for juvenile fish, i.e. spring flows. Temperature control releases on hold for 1992.				
12/1/92 Temperature data collected from July and September cold water releases from Dworshak				
3.3B.3	27	All Parties	Seek funding to modify commercial and recreational facilities at Dworshak to allow operations at reduced levels	
Activity Summary:				
12/4/92 Bonneville contracts 87-99 (IDFG) and 87-407 (NPT) address biological issues. Idaho report done 5/92, final Nez Perce report in preparation. Modifications for 1993 will be funded by BOR and address recreational impacts			Contacts: Bob Austin Rudd Turner	503/230-5199 503/326-3829
1/1/93 Corps draft EIS included discussion of recreational and commercial impacts at Dworshak				
3.3B.4	28	FERC Idaho Power	Report on options to improve delivery of fish flows through Browlee	12/31/93
Activity Summary:				
11/18/92 Idaho Power reported to the Council that it is working with FERC to meet the Council's schedule			Contacts: Steve Herndon	Idaho Power 208/383-2692
3.3B.8	28	Bonneville	Fund an independent evaluation of effectiveness of Upper Snake water marketing and conservation measures in providing fall water for salmon	
Activity Summary:				
6/22/93 Water rental projects have evaluation components			Contacts:	
8/4/93 No independent evaluation funded by Bonneville's '94 budget				
3.4A.1	28		Monitor and evaluate the benefits to fish survival from John Day operations	
Activity Summary:				
			Contacts: Rudd Turner Jay Marcotte	Corps Bonneville 503/326-3829 503/230-5744
3.4A.4	28	Bonneville	Provide monthly report on volume of water stored on upper Columbia	
Activity Summary:				
5/29/92 Bonneville provides through weekly "Fish Operations Report"			Contacts: Roger Schiewe	Bonneville 206/690-2132
3.4A.5	28	Corps	Provide monthly report on where fish augmentation water is being stored	
Activity Summary:				
12/1/92 Bonneville provides this report to FOEC			Contacts: Roger Schiewe	Bonneville 206/690-2132

Measure	Pg	Entity	Action	Action Date
3.5A.2	32	Bonneville Bureau Corps Council	Establish a drawdown planning committee	
Activity Summary:				
1/1/93 Council received interim report at 12/92 Council meeting				503/222-5161
2/16/93 Council staff summarized committee activities at 2/93 Council meeting				
3.5A.3	32	Bonneville	Fund the independent review of drawdown analyses	2/1/92
Activity Summary:				
5/5/92 Bid solicitation issued.				
8/21/92 Contract awarded to Harza;				
12/1/92 Harza reported evaluation of Corps report at 12/92 Council meeting				
3.5A.4	32	Federal Project Operators Federal Project Regulators	Implement approved drawdown plans; incorporate planning process into NEPA and ESA obligations	503/222-5161
Activity Summary:				
This follows drawdown evaluation and Council review				
3.5A.6	32	Congress Corps	Address potential impacts of drawdown to lower Columbia navigation channel	
Activity Summary:				
1/1/93 Corps Portland District is conducting a channel deepening study				
3.5A.a	31	Drawdown Planners	Interim report on drawdown plans	503/326-3829 11/1/92
Activity Summary:				
5/5/92 Drawdown test completed; initial report scheduled for May Council meeting.				
12/1/92 Corps gave Council interim report				
12/4/92 Interim report scheduled for 12/9 Council meeting				
3.5A.b	31	Drawdown Planners	Report to Council on drawdown feasibility	11/1/93
Activity Summary:				
5/5/92 Drawdown oversight committee continues to meet.				
12/1/92 Harza review submitted at 12/9 Council meeting				
8/4/93				
				503/222-5161

Measure	Pg	Entity	Action	Action Date
3.5A.c	31	Council	Following Interim report, establish an implementation schedule for further steps in developing a reservoir drawdown program	11/1/92
Activity Summary:				
12/1/92 Council heard Interim report				
3.6A.1	32	Bonneville Corps Oregon Others Washington	Report to Council measures which can remove limits to operational levels at John Day pool	503/322-5161 3/15/92
Activity Summary:				
5/5/92 Corps plans to provide information through system configuration study and work with drawdown committees. Schedule not clear.				
12/6/92 Included in System Configuration Study Interim report to Council				
8/4/93 Corps expects delay in report				
3.6A.2	32	Bonneville Corps Oregon Others Washington	Report to Council requirements to operate John Day pool at 257.9 feet elevation	503/326-3829 11/1/92
Activity Summary:				
3/31/92 Corps will provide information through system configuration study.				
12/6/92 Included in System Configuration Study Interim report to Council				
8/4/93 Corps expects delay in report				
3.6A.3	33	Bonneville Corps Oregon Washington	Following Council review of John Day operation requirements, prepare and implement a mitigation plan for operating John Day reservoir at lower levels	503/326-3829
Activity Summary:				
Contacts: Rudd Turner Corps				

Measure	Pg	Entity	Action	Action Date
3.6B.1	33	Bonneville Corps Idaho Oregon Reclamation	Report on Snake river basin storage appraisal study	12/31/93
Activity Summary:				
6/2/92 Expanded list of sites being screened for report.				
12/4/92 List has been narrowed to 12 locations; hydrologic studies being conducted to determine water availability				
3.6C.2	34	Reclamation States	Submit work plan and budget for Snake flow augmentation water committee	
Activity Summary:				
12/4/92 Interstate water agency group submitted work plan 6/25; Council approved work plan;				
2/1/93 Bonneville funds committee travel through CBFWA contract; preparing contract for technical assistance				
5/4/93 Request for proposals has been issued for competitive bid				
8/4/93 Contractor assistance funding is delayed				
3.6C.4	34	Reclamation	Report on water conservation and improved efficiency for benefits to anadromous fish.	
Activity Summary:				
6/2/92 Regional Water Conservation Center formed to coordinate action and report to Council				
2/23/93 Bureau provided status report on various water conservation initiatives in the Northwest				
3.6C.5	34	Bonneville Bureau Corps	Under auspices of Columbia River Water Management Group, report on review of water forecasting system	
Activity Summary:				
2/25/92 Forecasting committee meeting to consider measure;				
12/4/92 Columbia River Water Management Group submitted a study plan in July; preparing recommendations for actions to improve forecasting				
3/22/93 Report nearing completion - draft under review				
8/26/93 Columbia River Water Management Group will present recommendations to Council fish committee at October meeting				
Contacts:				
Ron Gohus Dan Daley				208/334-1147 503/230-3810
BOR Bonneville				
Contacts:				
Wayne Haas Dan Daley				208/327-7900 503/230-3810
IDWR Bonneville				
Contacts:				
Allen Powers				208/338-1774
Reclamation				
Contacts:				
Dan Yribar				230-3810
Reclamation				

Measure	Fg	Entity	Action	Action Date
3.6D.1	34	Bonneville Bureau Corps	Report on power measures to offset fish flow costs	12/31/93
Activity Summary:				
5/21/92 Bonneville made power sales contract for fish flow augmentation			Contacts: Walt Pollock	230-3370
12/4/92 System Operations Review responsible for proposing improvements				
3.6E.1	34	Corps	Reexamine all flood control rules to yield more useful flows.	12/31/93
Activity Summary:				
3/31/92 Part of the System Operations Review			Contacts: Rudd Turner	503/226-3829
3.6F.11	35	States Tribes	Review and submit existing information on impacts of flow operations on storage reservoirs. Continue to develop biological rule curves.	2/28/93
Activity Summary:				
3/31/92 Funded through the System Operations Review			Contacts: Brian Marotz	MFWP
5/5/93 Managers committed to providing existing information at April 12 Progress Review			Charles Craig	Bonneville
7/21/93 WDW submitted existing information on Lake Roosevelt				503/230-7543
3.6F.12	35	Bonneville	Fund research and monitoring of effects of salmon flows on resident fish and wildlife at storage reservoirs	
Activity Summary:				
3/31/92 Funded through the System Operations Review			Contacts: Charles Craig	503/230-7543
4/14/93 Bonneville funding Nez Perce project at Dworzhak (87-407)			Bob Austin	503/231-6946
7/16/93 Bonneville contracted for Lake Roosevelt evaluation (88-63)				
3.6F.2	35	Council	Initiate an amendment process to to state the Council's position of flow, travel time, and survival of juvenile salmon	8/31/93
Activity Summary:				
6/22/93 Council intends to open amendments in fall '93			Contacts:	
3.6F.3	35	Bonneville	Fund evaluations of flow and velocity effectiveness in improving survival	7/15/93
Activity Summary:				
12/4/92 Skalski-Williams test of study methods is under review by Scientific Review Group			Contacts: Carolyn Zarnoko	503/230-3656
2/23/93 Bonneville is funding Skalski-Williams study				
6/22/93 Field work completed				
8/4/93 Researchers reported '93 work to Council staff				

Measure	Pg	Entity	Action	Action Date
3.6F.7	35	Bonneville	Fund PIT tags, detectors and other marking techniques for evaluation	
Activity Summary:				Contacts: Jerry Bauer Pat Poe Bonneville Bonneville 230-7579 230-4043
2/13/92 Received work statement for design and construction of PIT tag detector at Lower Monumental. Project 91-064				
1/1/93 Corps is working on final design at McNary				
5/5/93 In Bonneville's procurement process				
3.6F.8	35	Bonneville	Fund installation of juvenile PIT tag detectors at mainstem dams.	
Activity Summary:				Contacts: Pat Poe Bonneville 503/230-4043
5/29/92 Lower Monumental, McNary in progress; 91-064. Feasibility work occurring for John Day and Bonneville				
12/4/92 Projects are on schedule. McNary completion expected in 1994				
6/29/93 Bonneville and Corps discussing sequence of installation at John Day and Bonneville I and II				
3.6F.9	35	Bonneville	Fund a study of gas supersaturation effects on survival, particularly in connection with reservoir drawdowns	
Activity Summary:				Contacts: Jerry Bonek Bonneville 503/230-5213
5/5/92 No action reported				
12/4/92 Draft request for proposals is in Bonneville's procurement process. Contract development estimated for late spring, 1993				
2/23/93 Bonneville action still needs procurement approval; funding budgeted for FY 93 start. In addition, existing predator research (82-003) has component dealing with gas supersaturation				
6/22/93 Request for proposal deferred to FY '94				
8/4/93 Study included in Bonneville's FY '94 budget - needs definition				
3.7A.1a	36	Corps	Lower Monumental screen and bypass operational	3/31/92
Activity Summary:				Contacts: Rudd Turner Corps NPD 503/326-3829
3/31/92 Bypass and screens are operational				
5/5/92 NMFS called for spill until effectiveness tested.				
9/2/92 Bypass and screens operational. Spill provided on non-test nights in spring and summer.				
3.7A.1b1	36	Corps	Provide interim screening and shutoff at Ice Harbor	3/31/93
Activity Summary:				Contacts: Rudd Turner Corps 503/326-3829
2/3/92 Funding included in Administration budget - DM				
5/5/93 Continued funding in Administration budget				

Measure	Fy	Entity	Action	Action Date
3.7A.1b2	36	Corps	Complete operational screening and flume bypass system at Ice Harbor	3/31/96
Activity Summary:				
9/2/92 Funding included in appropriation bills. Schedule for completion is 3/31/96 due to coordinated design changes			Contacts: Rudd Turner	Corps NPD 503/526-3829
5/5/93 Continued funding in Administration budget				
3.7A.1c	36	Corps	Maintain screen and bypass construction on Council schedule	3/31/98
Activity Summary:				
2/3/92 Funding included in Administration budget			Contacts: Rudd Turner	Corps NPD 503/526-3829
11/6/92 Congress appropriated funds for FY 93 work except for John Day extended length screens				
5/5/93 Continued funding in Administration budget				
3.7B.10a	37	Grant County PUD	Complete evaluation of prototype juvenile fish bypass systems at Wanapum and Priest Rapids and report to Council and FERC	
Activity Summary:				
			Contacts:	
3.7B.10b	37	Grant County PUD	Complete installation of juvenile fish bypass system at Wanapum Dam	3/1/98
Activity Summary:				
			Contacts:	
3.7B.10c	37	Grant County PUD	Complete installation of juvenile fish bypass system at Priest Rapids Dam	3/1/97
Activity Summary:				
			Contacts:	
3.7B.10d	37	Grant County PUD	Provide increased spill at Wanapum and Priest Rapids	
Activity Summary:				
			Contacts:	
3.7B.11	37	Mid-Columbia PUDs	Develop and submit an annual fish passage and project operation and maintenance plan	
Activity Summary:				
			Contacts:	
3.7B.12	38	Eugene Water and Electric Board	Improve the juvenile fish bypass facilities at Leaburg Dam	12/31/92
Activity Summary:				
			Contacts:	
3.7B.13	38	Eugene Water and Electric Board	Complete permanent juvenile fish bypass facility at Wallerville project	11/11/95
Activity Summary:				
			Contacts:	

Measure	Fg	Entity	Action	Action Date
3.7B.4	37	Corps	Report needed modifications for fish passage at Bonneville I	
Activity Summary:				Contacts: Rudd Turner
3/31/92 Work continuing				Corps NPD 503/326-3829
9/2/92 Work continuing				
3.7B.5	37	Corps	Install juvenile fish separator and flume at Lower Granite	3/31/96
Activity Summary:				Contacts: Rudd Turner
2/3/92 Funding included in Administration budget				Corps NPD 503/326-3829
9/2/92 Separator funding included in Administration budget. Flume design being addressed in system configuration study				
3.7B.7	37	Corps of Engineers	Explore promising new approaches to fish bypass technologies	
Activity Summary:				Contacts: Rudd Turner Pat Poe
5/5/93 Bonneville is conducting a literature review; project 92-071				Corps Bonneville 503/230-4043
3.7B.8	37	Douglas County FUD	Ensure that juvenile bypass at Wells Dam operates effectively	
Activity Summary:				Contacts:
3.7B.9a	37	Chelan County FUD	Complete evaluation of juvenile fish bypass system at Rocky Reach Dam and report to Council	8/31/93
Activity Summary:				Contacts:
3.7B.9b	37	Chelan County FUD	Complete installation of juvenile bypass system at Rock Island Dam as per settlement agreement	
Activity Summary:				Contacts:
3.7B.9c	37	Chelan County FUD	Develop plans for spills at Rocky Reach and Rock Island dams as per settlement agreement	3/1/93
Activity Summary:				Contacts:
3.8B.1	38	Bonneville	Report on the effectiveness of the squawfish demonstration project	10/31/92
Activity Summary:				Contacts: Bill Maalen
5/5/92 1992 program in place.				Bonneville 503/230-5549
8/27/92 205,000 squawfish caught to date				
1/1/93 Bonneville reported to Council at 1/93 meeting				
5/5/93 1992 Draft reports are available for review				

Measure	Pg	Entity	Action	Action Date
3.8B.2	38	Bonneville Corps FERC	Evaluate modifications to bypass release systems to reduce predation	
Activity Summary:				
1/21/92 Statement of work received from Bonneville for ongoing contract project 82-003, 1992 work. Work is related to predator related mortality.			Contacts: Bill Maaten Bonneville	503/230-5549
12/4/92 Work proceeding under project 82-003 for prey protection. Corps has lead on study changes to bypass facilities. Final report for '92 due in March 1993.				
3.8B.3	38	NMFS	Continue to evaluate interactions between marine mammals and salmon	
Activity Summary:				
2/1/93 No specific work reported			Contacts:	
4/7/93 Council wrote NMFS requesting report				
3.8B.4	38	Mid-Columbia FUDs	Report on the extent of predation and predator indexing in the Mid-Columbia reservoirs	1/31/94
Activity Summary:				
			Contacts:	
3.9.10	40	Corps	Evaluate alternative transportation methods	12/31/92
Activity Summary:				
4/16/92 Nothing new initiated by BPA. Corps has ongoing study. See III.3.A.7, Pg. 29			Contacts: Rodd Turner Corps	503/326-3829
12/7/92 Included in System Configuration Study Interim report to Council				
3.9.11	40	Bonneville	Continue research to determine survival rates of fish before reaching transportation collection sites	
Activity Summary:				
1/1/93 Draft research plan under review			Contacts: Pat Pos Bonneville	503/730-4043
5/5/93 Projects 92-017, and 93-024 (Skalko-Williams) address				
3.9.12	40	Fish Managers River Operators	Report on means to improve migration conditions in reservoirs	3/15/93
Activity Summary:				
			Contacts:	
3.9.2	39	Fish Managers	Present guidelines for smolt transportation	3/1/93
Activity Summary:				
5/5/92 Guidelines in place			Contacts:	
5/22/93 1993 guidelines in place				

Measure	Pg	Entity	Action	Action Date
3.9.5	39	Corps	Report on the outline of a transportation evaluation program	1/30/93
Activity Summary:				
9/2/92 Corps addressing through FPDEP			Contacts: Rudd Turner	Corps NPD 503/326-3829
3.9.8	40	Corps	Test use of alternative strategies to reduce stress and improve transportation of fall chinook,	1/30/93
Activity Summary:				
1/1/93 Improvements discussed in Interim drawdown report			Contacts: Rudd Turner	Corps NPD 503/326-3829
3.9.9	40	Corps	Report on the status of improving transportation conditions	12/31/93
Activity Summary:				
3/31/92 Measure being addressed through Fish Passage Development and Evaluation Program			Contacts: Rudd Turner	Corps NPD 503/326-3829
4.1.1	41	Corps	Evaluate, with fish managers, needed improvements in fishway operation and spill criteria	
Activity Summary:				
1/1/93 Addressed in annual fish passage plan. Draft '93 plan available for comment			Contacts: Rudd Turner	Corps 503/326-3829
4.1.10	42	Bonneville Corps	Evaluate feasibility of using video based counting. Report to Council; institute if feasible	12/31/93
Activity Summary:				
6/2/92 Bonneville funding Inter-Tribe project 92-055			Contacts: Douglas Hatch Deb Watkins	CRITFC 503/731-1263 Bonneville 503/230-5823
7/29/92 Corps Phase Three comments report use of video to monitor sockeye passage at Bonneville, Ice Harbor and Lower Granite				
6/22/93 '92 annual report published, evaluation continues				
7/28/93 Evaluation project extended through March 31, 1994				
4.1.11	42	Bonneville Corps	Continue research and development of adult PIT tag detectors at mainstem dams. Report to Council	12/31/94
Activity Summary:				
3/31/92 On schedule			Contacts: Jerry Bauer	Bonneville 503/230-7579
12/4/92 NMFS contract 83-319 is looking at feasibility of systems similar to Lower Granite for Ice Harbor and McNary. NMFS has issued request for proposal for extended range adult detectors. Proposals due 12/92				
5/5/93 NMFS is conducting research under project 83-319. Report expected by end of '93				

Measure	Pr	Entity	Action	Action Date
4.1.12	42	Bonneville Corps Idaho Power	Evaluate effect of cool water releases from Dvorzhak and Browlee on adult survival. Report to Council	12/31/93
Activity Summary:				
3/31/92			Testing may be constrained by NMFS requirements for use of cold water releases.	
9/1/92			Cold water released from Dvorzhak to reduce lower Snake R. temperature	
6/30/93			Summer water operations are prescribed by NMFS biological opinion	
4.1.12a	42	Bonneville Corps Idaho Power	Upgrade COLTEMP model with all previous data	
Activity Summary:				
2/19/92			Being updated	
9/2/92			Completed by Corps	
4.1.12b	42	Bonneville Corps Idaho Power	Add to water temperature data network on Snake temperatures	
Activity Summary:				
9/2/92			Work continuing through fall chinook research	
4.1.12c	42	Bonneville Corps Idaho Power	Conduct additional adult migration studies. Report to Council	12/31/93
Activity Summary:				
3/31/92			Corps funding Blom work; BPA funding WDF fall chinook work 92-046 which tracks lee	
5/5/93			Draft annual report due in July	
4.1.12d	42	Bonneville Corps Idaho Power	Provide for coordinated adult migration data base management	
Activity Summary:				
1/1/93			Corps reports that coordination occurs	
4.1.13	42	Mid-Columbia FUDs	Evaluate adult fish passage at mid-Columbia projects to determine inter-dam losses; compile report to FERC and Council	
Activity Summary:				

Measure	Pg	Entity	Action	Action Date
4.1.14	43	Eugene Water and Electric Board	Complete new adult fish ladder at Leaburg Dam	8/1/95
Activity Summary:				
3/24/93	EWZB	reports construction on schedule		
4.1.15	43	Eugene Water and Electric Board	Complete velocity barrier at Waterville project	7/1/95
Activity Summary:				
3/24/93	EWZB	reports construction on schedule		
4.1.16	43	Bonneville	Fund Starbuck Dam passage improvement	
Activity Summary:				
3/4/92	Bonneville	signed final statements of work with Washington Dept. of Fisheries for construction contract. 4/1/0 - Final design phase in progress.		
12/7/92	Completed.	Project 92-25.		
4.1.2	41	Corps	Evaluate maintain adult passage facilities, make needed improvements, and install back-up facilities	
Activity Summary:				
1/1/93	Work continuing			
4.1.4	41	Corps	Continue to upgrade existing adult passage facilities	
Activity Summary:				
3/31/92	Work continuing			
9/2/92	Work continuing			
4.1.5	41	Corps	Provide at least two additional biologists at mainstem dams	
Activity Summary:				
2/24/92	Council	needs to clarify intent of measure.		
3/6/92	Letter	clarifying biologists needed at Lolo and Ice Harbor sent.		
3/31/92	Corps	hiring one biologist and additional staff - will respond in writing.		
9/2/92	Biologists	hired at Ice Harbor/ Lower Monumental and The Dalles/John Day.		
4.1.6	41	Corps	Evaluate the effects of shad population increases. Report to Council	11/30/94
Activity Summary:				
2/24/92	Corps	scoping work for recommendation to Council		
7/29/92	Corps	phase 3 comments say shad study has not "received priority" from CBFWA or Corps. Part of FPDEP research program		
5/5/93	Corps	plans initiation of work in 1996		

Measure	Pg	Entity	Action	Contacts:	Action Date
4.1.7	42	Corps	Evaluate methods for decreasing water temperature in ladders		
Activity Summary:					
3/31/92	Corps	assessing how to proceed under NMFS guidelines for cold water releases		Rudd Turner	503/326-3829
9/2/92	Ongoing,	coordinated with cold water releases			
4.1.8	42	Corps	Report effects of zero nighttime flow.		12/31/93
Activity Summary:					
3/31/92	In scope of FPDEP work for Sept. study.			Rudd Turner	503/326-3829
9/2/92	Being addressed as an objective in FPDEP adult migration studies;				
10/8/92	Tested as Snake dams in late September				
5/3/93	Included in objectives of 1993 fish passage evaluations.				
4.1.9	42	Bonneville	Evaluate inter-dam adult losses		1/31/94
Corps					
Fish Managers					
Activity Summary:					
3/31/92	Included in FPDEP scope of study			Rudd Turner	503/326-3829
2/23/93	Bonneville focusing on fall chinook; Corps studying spring/summer chinook			Deb Watkins	503/230-5823
5.1A.1	46	Fish Managers	Expedite management goals and escapement objectives		
Activity Summary:					
<i>No action reported</i>					
5.1B.1	47	Fish Managers	Develop and/or review and revise escapement objectives and rebuilding schedules for weak stocks		
Activity Summary:					
<i>No action reported</i>					
5.1C.1	47	Fish Managers	Consult with Council on consistency of harvest management with rebuilding schedules		
Activity Summary:					
5/27/92	PFMC reviewed ocean harvest quotas as Council working session			John Coon	503/326-6352
3/29/93	Fish managers scheduled for Council's April working session				
5.2.1	47	Fish Managers	Implement harvest regimes that protect critical brood stocks and pass through population gains associated with program		
Activity Summary:					
5/5/93	April 12 Progress Review concluded with commitments, but no schedule				
8/4/93	NMFS biological opinion for '94 harvest season released				

Measure	Pg	Entity	Action	Action Date
5.2.2	47	Fish Managers	Document how harvest rates were calculated. Include as part of unified harvest data report	
Activity Summary:				
No action reported				
5/5/93 ODFW distributed report at April 12 Progress Review				
5.2A	47	Fish Managers	Limit sockeye harvest below Snake and Columbia confluence	
Activity Summary:				
5/5/92 1992 Compact in place: Compact provisions were complied with in 1992				
5/5/93 1993 Compact in place				
5.2B	48	Fish Managers	Limit fall chinook harvest to 55 percent	
Activity Summary:				
5/5/92 PFMC adopted 1992 ocean harvest quotas; relation to Council request not clear				
12/7/92 Relation of 1992 harvest quotas to 55 percent rate still not clear				
3/22/93 Pacific Fishery Management Council sets 1993 harvest rate April 6-9 in Portland				
5/5/93 Rates will be below 55 percent				
8/4/93 Council to hear discussion of '93 level at August meeting				
5.2C	48	Fish Managers	Continue to manage spring and summer chinook according to U.S. v. Oregon	
Activity Summary:				
5/5/92 Compact in place: Provisions were complied with in 1992				
5/5/93 Compact in place for 1993				
5.2E	48	Bonneville Commercial Fishers Fish Managers	Design and implement voluntary harvest reduction measures	
Activity Summary:				
6/2/92 Discussions among managers, Bonneville, utilities and fishing interests continuing				
11/6/92 Discussions have begun for a 1993 program				
1/1/93 Bonneville wants tribal agreement for pass through first				
5/11/93 Bonneville notified Council that negotiations for '93 program failed; requested Council reconsider measure				
Contacts:				Steve Smith
				Bonneville
				503/230-5365

Measure	Fy	Entity	Action	Contact	Action Date
5.3A.1	48	Bonneville	Develop and implement live catch and known stock methods. Report annually on progress.		
Activity Summary:					
1/21/92 Consultation held with fishery managers to discuss implementation				Contact:	503/230-3066
12/7/92 Bonneville plans to issue request for proposal in January, '93				Steve Vigg	Bonneville
5/5/93 Further discussions held, but no contracts					
8/4/93					
5.3B.1	49	Bonneville	Fund pilot projects for selective harvest technology		
Activity Summary:					
1/1/93 Bonneville developing a request for proposal				Contact:	503/230-3066
5/5/93 Bonneville continuing to develop through discussions with OSU Marine extension and fishery managers				Steve Vigg	Bonneville
5.3C.1	49	Bonneville	Fund study evaluating potential terminal fishery sites and opportunities.		
Activity Summary:					
1/21/92 Consultation held with fishery managers to discuss implementation				Contact:	503/230-5061
12/7/92 Bonneville funding ODFW Young's Bay acclimation pens pilot project. Contract 92-77				Rick Westhof	Bonneville
1/1/93 Bonneville formed committee to review basin sites				Steve Smith	Bonneville
2/23/93 Meeting on long-term comprehensive program of research priorities held February 18					
Currently no budget for FY 93 implementation					
4/5/93 Youngs Bay environmental assessment available for comment through 4/9					
5/5/93 Additional meetings held					
5.4A	49	Fish Managers	Develop and implement expanded genetic stock identification program. Review with Council		1/31/93
Activity Summary:					
3/16/92 Council wrote managers requesting action				Contact:	503/230-5061
4/8/92 WDF response described funding needs.				Rick Westhof	Bonneville
11/6/92 Bonneville placed measure on hold for lack of proposals from agencies					
2/23/93 Bonneville has deferred to FY '94					

Measure	Pg	Entity	Action	Review with	Action Date
5.4B	49	Fish Managers	Scope genetic stock identification data base for Columbia River stocks. Council	Review with	1/31/93
Activity Summary:					
5/5/92 Project led by Dr. Fred Allendorf on coho DNA variation funded 1/31/92, Project 92-035; agencies have not proposed comprehensive proposal				Contacts: Deb Watkins	503/230-5823
2/23/93 Bonneville plans presentation on Allendorf work 2/26. Final report due by May, 1993					
5/22/93 Final report being printed					
6/22/93					
5.4C	49	Fish Managers	Develop expanded catch sample and marking programs	Review with Council the effectiveness of existing programs	
Activity Summary:					
12/7/92 Bonneville addressing through expansion of existing coded wire tag program				Contacts: Jerry Bauer	503/230-5061
1/22/93 PSMFC distributed report on options for expansion of mass marking					
5/5/93 Bonneville believes missing production expansion work satisfies the measure					
5.5A	50	States	Review with Council need for changes in sport fishing regulations		
Activity Summary:					
3/16/92 Council wrote managers requesting action;				Contacts:	
4/8/92 WDF reported scrutiny of spring chinook regulations					
5.5B	50	NFFMC	Report to Council on incidental harvest of Columbia River salmon		
PFMC					
Activity Summary:					
7/29/92 No action reported				Contacts:	
5.5C.2	50	Bonneville Fish Managers Council	Implement harvest enforcement program review accomplishments annually with Council		
Activity Summary:					
1/1/93 No report yet				Contacts: Steve Vigg	503/230-3066
2/23/93 Final report for '92 expected by end of March					
5/5/93 Final report is expected imminently					

Measure	Pg	Entity	Action	Action Date
5.5D.1	50	Bonneville	Develop and implement fishing permit buy-back program	
		States		
		Utilities		
Activity Summary:				
4/27/92 Industry, managers, utilities and Bonneville met to discuss.			Contacts: Steve Smith Harry Wagner	Bonneville NPPC 503/230-5365 503/222-5161
5/7/92 Reported status to Council				
11/6/92 Discussions towards 1993 program have begun				
2/23/93 Bonneville wants terminal fisheries availability resolved first				
6/22/93 Bonneville has referred measure back to Council				
5.5E.1	50	Congress	Enact legislation to include Idaho and tribes in Columbia River Compact	
		States		
Activity Summary:				
4/30/93 Council approved resolution calling for Idaho inclusion			Contacts:	
5.5F.1	51	NMFS	Prepare and circulate a unified annual report on harvest and escapement of Columbia Basin stocks	
Activity Summary:				
5/1/93 At April 12 Progress Review NMFS promised report in July			Contacts: Gary Smith	NMFS 208/526-6150
8/17/93 NMFS wrote Council to explain method to be used to prepare report. Expected for completion by end of 1993				
5.5F.2	51	Idaho	Report the number and species of anadromous fish harvested	3/31/93
Activity Summary:				
Contacts:				
6.1B.1	54	Bonneville	Form six subregional teams to assist in implementation of measures	
		Fish Managers		
Activity Summary:				
12/1/92 Council staff continue to work with Bonneville and CBFWA to develop structure.			Contacts: Doug Marker Tom Giese Mark Schneider	NPPC CBFWA Bonneville 222-5161 326-7031 230-5384
8/4/93 No funding provided for this measure in '94 Bonneville budget				
6.1C.1	55	Bonneville	Fund a preliminary evaluation of ecological carrying capacity and limiting factors	
Activity Summary:				
4/17/92 No action taken: Procurement of evaluation and study plan developments expected to begin in March '93			Contacts: Ron Mortinaka Jeff Gishson	Bonneville Bonneville 503/230-5885 503/230-5710
6/22/93 Bonneville has deferred action to FY '94				
8/4/93 Bonneville plans to fund study plan in '94				

Measure	Pg	Entity	Action	Action Date
6.1C.2	55	Bonneville	Fund development of a comprehensive carrying capacity study plan. Report to Council	12/31/93
Activity Summary:				
<i>5/5/93 Follows scoping and design of a study plan</i>				
6.2A.1	57	Council Genetics Team	Report on framework to conserve genetic diversity	5/31/93
Activity Summary:				
<i>1/31/92 Draft received</i>				
<i>2/26/92 Presented to Council</i>				
6.2A.3	57	Bonneville	Fund scope and design of study to identify wild salmon populations. Include alternative study designs	12/31/92
Activity Summary:				
<i>6/30/93 Bonneville is setting up scoping group under the Implementation Planning Process</i>				
<i>8/4/93 No funding for this measure in Bonneville FY '94 budget</i>				
6.2A.4	57	Fish Managers	Develop and submit to Council proposal to collect information on naturally spawning populations	6/30/93
Activity Summary:				
6.2A.5	57	Bonneville	Fund project to scope costs, duration, feasibility and benefits of alternative programs for monitoring naturally spawning populations	9/30/93
Activity Summary:				
<i>No funding for this measure in Bonneville FY '94 budget</i>				
6.2A.6	57	Fish Managers	Develop and review with Council a proposed conservation policy for wild and naturally spawning populations	3/31/93
Activity Summary:				
6.2A.7	58	Fish Managers	Establish naturally spawning population conservation coordination program. Provide for Council and public review.	6/30/93
Activity Summary:				
6.2A.8	58	Regional Parties	Fund feasibility study for Pacific Northwest biodiversity institute.	
Activity Summary:				
6.2A.9	58	Bonneville	Report on procedure to conduct population vulnerability analyses on depleted stocks	6/30/93
Activity Summary:				
<i>5/5/93 Bonneville believes measure may be met in part by genetic monitoring program.</i>				

Measure	Pg	Entity	Action	Action Date
6.2B.1	59	Bonneville	Fund fish managers to develop guidelines to minimize genetic impacts from hatchery fish	10/31/92
Activity Summary:				
2/23/93	Funded through IHOT contract			
6.2B.10	60	Fish Managers	Submit plan for implementing Integrated Hatchery Operations Team hatchery guidelines	503/230-7579
Activity Summary:				
5/5/92	IHOT work plan to develop guidelines prepared for Bonneville funding.			
6/29/92	Work plan in place			
6.2B.11	60	Integrated Hatchery Operations Team	Prepare program to monitor compliance with performance standards	503/326-7031 503/230-7579
Activity Summary:				
5/5/92	IHOT work plan completed for funding			
7/29/92	IHOT contract in place.			
6.2B.12	60	Integrated Hatchery Operations Team	Report on hatchery policies and operations	503/326-7031 503/230-7579
Activity Summary:				
5/5/92	IHOT work plan completed for Bonneville funding.			
12/7/92	IHOT divided into 3 parts: 92: genetics, fish health, ecological interactions. Expect report 12/92			
6/22/93	Completed			1/31/93
6.2B.13	60	Bonneville	Report results of independent hatchery audits	12/31/93
Activity Summary:				
5/4/92	IHOT considering seeking delay in audit to follow development of performance standards			
8/27/92	Part of IHOT work. Will be developed as part of comprehensive package, project #92-043			
6.2B.14	60	Bonneville	Fund analysis of existing data on basinwide trends in hatchery fish survival	1/31/94
Activity Summary:				
2/7/92	Bonneville incorporating into existing tag analysis project			
2/23/93	Bonneville expects new CWT information to provide basis for this analysis			
6.2B.15a	60	Bonneville	Fund an analysis of opportunities for alternative institutional arrangements for hatchery production	6/15/93
Activity Summary:				
	Bonneville intends to address through implementation of IHOT guidelines. The analysis of current hatchery operations will provide the basis			
				230-7579

Measure	Pg	Entity	Action	Action Date
6.2B.15b	60	Bonneville	Propose a policy to encourage artificial production programs in which alternative institutional arrangements between implementors and managers are used.	12/31/93
Activity Summary:				
2/24/93	Bonneville	Intends to address through implementation of IHOT guidelines	Contacts: Jerry Bauer	503/230-7579
6.2B.16	61	Fish Managers	Report on hatcheries known to have high stray rates	12/31/91
Activity Summary:				
3/30/92	States and USDFW	agreed to mark all Unatilla and Snake hatchery chinook with adipose clip and coded wire tag.	Contacts: Jay Marcotte	Bonneville
8/5/93	All Snake hatchery releases	were marked, but no report on regional straying problem.		
6.2B.17	61	Bonneville	Fund program to mark salmon from hatcheries with high stray rates	
Activity Summary:				
4/23/92	All Snake hatchery releases	being marked. Bonneville convening technical group to scope Snake trapping program	Contacts: Jay Marcotte	Bonneville
12/7/92	Fish from Yakima, Unatilla, and Lyon's Ferry	were marked in '92. Will be marked in '93		
2/24/93	Mark Advisory Group	considering dispute over fin clips and alternatives. BPA funding marks at Rapid River hatchery		
5/5/93	Fish clipped in same manner as '92			
6.2B.18	61	Fish Managers	Determine feasibility of marking hatchery salmon	2/1/92
Activity Summary:				
3/31/92	States and USFWS	will mark Snake hatchery chinook with adipose fin clips and coded wire tags. Funding from IPCo and LSRCF.	Contacts: Jerry Bauer	503/230-7579
12/7/92	Bonneville	addressing through two contracts 92-066 testing fin clips at Snake hatcheries, and 92-073 testing laser marking.		
6.2B.19	61	Bonneville	Cost-share marking of Willamette spring chinook	
Activity Summary:				
2/24/93	No current action.	Bonneville reports that current contract provides for coded wire tag of all hatchery spring chinook, but not wild fish. No proposals received from ODFW; but current legislation proposes marking all fish	Contacts: Jerry Bauer	503/230-7579
8/14/93	No funding for this measure in Bonneville's FY '94 budget			
6.2B.2	59	Bonneville	Fund design of impact assessment of hatcheries on wild fish	6/30/93
Activity Summary:				
5/29/92	Bonneville	considering incorporating into basinwide hatchery EIS	Contacts: Jerry Bauer	503/230-7579
11/6/92	Bonneville	plans to submit assessment proposal in January '93		
2/24/93	Bonneville	now intends to incorporate into IHOT; will be part of the outcome of the major policy papers on Ecological Interactions and hatchery survival		

Measure	Pg	Entity	Action	Action Date
6.2B.3	59	Council	Continue to convene and fund a genetics team to consult in hatchery guidelines	
Activity Summary:				
5/5/92 IHOT work plan provides for genetics team review - DM				
6.2B.4	59	Fish Managers	Form Integrated Hatchery Operations team	1/15/92
Activity Summary:				
1/21/92 IHOT formed				
6.2B.7	59	Fish Managers	Prepare work plan for development of hatchery guidelines	1/15/92
Activity Summary:				
2/19/92 Managers expect to implement through IHOT;				
2/19/92 Managers expect to implement through IHOT;				
5/5/92 IHOT contract near approval				
6/29/92 Funding contract is completed 92-043				
6.2B.8	60	Integrated Hatchery Operations Team	Descriptions for hatchery policies and performance standards	10/31/92
Activity Summary:				
5/21/92 IHOT contract in BPA procurement process.				
12/7/92 Expected to be completed this month				
6.2B.9a	60	Integrated Hatchery Operations Team	Complete criteria for independent hatchery audits	1/31/93
Activity Summary:				
Part of IHOT work				
6.2B.9b	60	Integrated Hatchery Operations Team	Report the results of scientific review of hatchery audit criteria	3/31/93
Activity Summary:				
6.2C.1	61	Regional Assessment of Supplementation Project	Report on framework to improve and evaluate supplementation	12/31/92
Activity Summary:				
1/24/92 Status Report Received (see Status Report for Regional Assessment of Supplementation Project, December 31, 1991)				
2/24/93 Final report is available				

Measure	Pg	Entity	Action	Report to	Action Date
6.2C.2a	62	Fish Managers	Conclude initial evaluation of proposed supplementation experiments.	Council.	1/31/93
Activity Summary:					
11/23/92 Fishery managers have completed most of the evaluation for report to Council. Are preparing funding request to complete biological risk assessments and incorporate RASP guidelines by 6/30/93 target					
2/24/93 CBFWA forwarded funding request for planning of nine projects to Bonneville					
3/22/93 Workshop on applying RASP procedures held 3/17/93					
6.2C.2b	62	Fish Managers	Complete evaluations of proposed supplementation experiments		6/30/93
Activity Summary:					
11/23/92 Needs funding request from project proposers					
5/5/93 Funding request received but Bonneville cancelled budget for 1993					
6.2C.4	62	Non-federal hatchery managers	Monitor and evaluate future and ongoing supplementation activities.	Report progress to Council	1/15/93
Activity Summary:					
5/22/93 Council heard report on Eastbank and Wells hatcheries					
6.2D.4	63	NMFS	Develop guidelines for using emergency breeding measures to aid in recovering populations		
Activity Summary:					
12/1/92 NMFS issued Technical Memorandum NMFS-NWFSC-2					
8/23/93 NMFS published interim policy in Federal Register, April 5, 1993					
6.2E.1a	63	Bonneville	Scope a study to evaluate cumulative impacts of current and proposed artificial production activities.		12/31/92
Activity Summary:					
2/24/93 Bonneville believes this action is indirectly covered by the current CBFWA supplementation proposals and in BPA's overall evaluation scoping effort of artificial production projects					
6.2E.1b	63	Bonneville	Upon Council approval, fund study to evaluate cumulative impacts of current and proposed artificial production activities		
Activity Summary:					
2/24/93 Depends on the outcome of the scoping phase of this measure					

Contacts:
Don Sampson
Tom Vogel

Contacts:
Tom Vogel
Don Sampson

Contacts:

Contacts:

Contacts:
Tom Clune
Tom Vogel

Contacts:
Tom Vogel
Tom Clune

503/226-7031
503/230-5201

Bonneville
CBFWA

Bonneville
Bonneville

503/230-5201
503/230-5724

Measure	Fg	Entity	Action	Action Date
6.2E.2	63	Bonneville	Fund a study to develop a method for project proposers and implementors to assess systemwide and cumulative impacts of proposed artificial production projects.	12/31/92
Activity Summary:				
2/24/93 Bonneville has placed on hold pending development of 6.2E.1. Implementation of RASP model may provide development of this tool				
6.2E.4	63	Fish Managers	Report precautions taken to restrict hatchery releases while carrying capacity study underway	12/31/92
Activity Summary:				
Contacts: Tom Clune Bonneville Jerry Bauer Bonneville Tom Vogel Bonneville				
6.2F	64	Fish Managers	Brief Council on progress of Program incorporation in production planning	
Activity Summary:				
5/5/92 Reporting not initiated.				
6.2G.1a	64	Bonneville NMFS	Complete scoping study of captive breeding research needs	3/31/93
Activity Summary:				
12/7/92 NMFS preparing work statement on literature review. Bonneville intends coordinated planning for ongoing projects involving sockeye, Clearwater chinook, and possible in the Yakima				
Contacts: Jerry Bauer Bonneville Tom Vogel Bonneville				
2/24/93 Draft contract changes by BPA being reviewed by NMFS. Expect final contract by May or June, 1993				
6/30/93 Contract with NMFS is funded. Project 93-056				
6.2G.1b	64	Bonneville NMFS	Fund captive broodstock research	6/30/93
Activity Summary:				
3/31/92 Artificial production scoping group recommended technical review first. 4/16 - Review being formulated for comprehensive review.				
Contacts: Jerry Bauer Bonneville				
12/7/92 Follows NMFS evaluation				
2/24/93 Bonneville expects earliest possible implementation would be late 1994 or early 1995				
6.2G.2	64	Bonneville NMFS	Fund captive broodstock demonstration projects identified under the coordinated hatchery and production process	5/31/230-7579
Activity Summary:				
2/24/93 On hold until evaluation by NMFS is completed and policy guidelines are established				
8/4/93 No funding for this measure in Bonneville's FY '94 budget				
Contacts: Jerry Bauer Bonneville Tom Vogel Bonneville				

Measure	Pg	Entity	Action	Action Date
6.2G.3	64	Federal agencies State agencies	Fund research to improve cryopreservation technology and develop applications for restoring and preserving depleted populations	12/31/92
Activity Summary:				Contacts:
6.2G.4	64	Appropriate agencies	Fund demonstrations of cryopreservation	
Activity Summary:				Contacts:
6.2G.5	65	Bonneville	Fund demonstration project for portable adult holding and juvenile acclimation facilities	12/31/91
Activity Summary:				Contacts:
1/24/92 Unatilla tribes implementing on Catherine Creek				Jay Marcotte Bonneville
12/7/92 Pre-site and feasibility study completed and forwarded to NMFS for review. Consultation will be the responsibility of the Fish and Wildlife Service under the Lower Snake Comp program				
2/24/93 BPA will fund and U.S. Fish and Wildlife Service will design, fabricate and install facilities utilizing ODFW. Statement of work to be developed by May, 1993				
6/30/93 No contract yet				
8/4/93 No funding for this measure in Bonneville's FY '94 budget				
6.2G.7	65	Bonneville	Fund planning of facilities at Ringold Hatchery to secure 100 cb water right	
Activity Summary:				Contacts:
11/6/92 BPA has funded preliminary project design with WDF (92-53). No final decision until study finished.				Tom Clume 503/230-5724
6.2G.9	66	Bonneville	Report results of data collection and analysis on the status of Pacific lamprey populations	12/31/93
Activity Summary:				Contacts:
2/1/93 Need to determine if work is being done through System Operation Review				Robyn MacKay Bonneville
2/24/93 Reclamation's Denver office is including a section in the SOR. CRITC submitted scope of work but Bonneville funding was not available due to timing of request				
8/4/93 No funding for this measure in FY '94				
6.3A.1	66	Bonneville	Fund Snake River experimental sockeye recovery project	
Activity Summary:				Contacts:
12/1/92 Four contracts in place: 91-71 (Sho-Ban Thibes) 91-72 (IDFG), 92-40 (NMFS), and 90-93 (UI); BPA publishes regular fact sheet				Thomas Flagg NMFS Jeff Galsano Bonneville
				206/553-4802 503/230-7463

Measure	Pg	Entity	Action	Action Date
6.3A.3	66	Bonneville Fish Managers	Fund and develop for Council review a plan for reintroduction of sockeye into appropriate production areas	
Activity Summary:				
2/24/93		Under review by NMFS in recovery plan development	Contacts: Jeff Giulason	Bonneville 503/230-7463
6.3B.1	66	Fish Managers	Submit experimental design for supplementing Snake River fall chinook	3/31/93
Activity Summary:				
12/7/92		Included in CRITFC supplementation project proposal list	Contacts:	
6.3B.2	66	Bonneville	Implement experimental design for supplementing Snake River fall chinook.	
Activity Summary:				
2/1/93		CBFWA is preparing proposal	Contacts: Tom Vogel	Bonneville 503/230-5645
5/5/93		Proposal submitted to Council		
6.3B.3	66	Bonneville	Fund studies to define the range, limiting factors and needs of Snake River fall chinook	
Activity Summary:				
1/1/93		USFWS conducting study under BPA contract 91-029; Report planned in August	Contacts: Deb Watkins	Bonneville 503/230-5823
6.3B.4	66	Bonneville	Fund studies to determine genetic structure and population status of Snake River fall chinook	
Activity Summary:				
12/7/92		WDF performing work under project 92-046. Annual report due 6/93; Interim report provided at BPA's September projects symposium	Contacts: Deb Watkins Rick Woeterhof	Bonneville Bonneville 503/230-5823 503/230-5823
6.3B.5	66	Bonneville	Fund study of spawning and rearing habitat used by Snake River fall chinook	
Activity Summary:				
11/23/92		USFWS conducting study under BPA contract 91-029	Contacts: Deb Watkins	503/230-5823
2/1/93		Need to determine if NMFS concerns have been resolved		
5/5/93		Council endorsed Nez Perce proposal, briefing scheduled at May meeting		

Measure	Pg	Entity	Action	Action Date
6.3C.1	67	Bonneville	Fund planning and construction of spring chinook trapping facilities on Grande Ronde tributaries	
Activity Summary:			Contacts: Bonneville Jay Marcotte	503/230-5744
5/5/92 Has been combined with N.E. Oregon hatchery project. Bonneville doing conceptual work and determining conflict with wild and scenic river management.				
12/7/92 Bonneville has presented feasibility study to NMFS. NMFS planning workshop to discuss overall planning for barriers on streams with listed species				
2/1/93 Workshop was held; need to determine if permit issues have been resolved				
2/24/93 Preliminary design work will be conducted to aid with NEPA analysis. Coordination occurring with Forest Service. BPA expects considerable long term development				
6.3D.1	67	Bonneville Oregon Washington	Identify naturally producing populations of lower Columbia coho and adopt management goals to rebuild those populations	
Activity Summary:			Contacts:	
6.3E.1	67	Bonneville Oregon Washington	Identify naturally producing populations of chin salmon and adopt management goals for rebuilding.	
Activity Summary:			Contacts:	
6.3F.1	68	Bonneville Oregon Washington	Identify naturally producing populations of sea-run cutthroat trout salmon and adopt management goals for rebuilding.	
Activity Summary:			Contacts:	
6.4C.1	70	Local Watershed Managers	Develop comprehensive habitat performance standards	
Activity Summary:			Contacts:	
6.4C.2	70	Idaho Oregon Washington Council offices	Report on adoption of habitat performance standards	12/31/93
Activity Summary:			Contacts:	

Measure	Pg	Entity	Action	Action Date
6.4C.4	70	Relevant Land Managers	Provide approaches for meeting performance standards for habitat restoration	
Activity Summary:				Contacts:
6.5A.1	72	Idaho Oregon Washington	Select lead entities to coordinate waterbed habitat activities	
Activity Summary:				Contacts:
2/1/93 States are coordinating with model watershed program				
6.5A.2	72	Bonneville	Fund a coordinator in Oregon, Washington and Idaho to initiate coordinated waterbed activities. May coordinate model waterbed activities	
Activity Summary:				Contacts:
2/24/93 Being funded through model watershed activities				Mark Shaw Bonneville 503/230-5710
6.5B.1		Bonneville	Provide initial funding for model watershed coordinators	
Activity Summary:				Contacts:
12/7/92 Bonneville contract 92-026. Oregon: nearing agreement; Idaho: coordinator hired; Washington: pending final selection of watersheds				Mark Shaw Bonneville 503/230-5710
2/24/93 Coordinators in each state funded				
6.5B.4	72	Idaho Oregon Washington	Report on progress in each model watershed	10/15/93
Activity Summary:				Contacts:
1/24/92 Oregon: Penel chose Grande Ronde				
2/19/92 Idaho chose Lemhi				
3/27/92 Washington nominated four watersheds;				
7/28/92 Bonneville preparing Oregon and Washington contracts: Project 92-026				
2/24/93 Washington selected Okanogan and Asotin Creek				
6.5B.5	72	Council	Review state model watershed annual reports. Produce a document about the lessons for other watersheds	
Activity Summary:				Contacts:

Measure	Pg.	Entity	Action	Action Date		
6.6A.1	73	Bureau of Land Management Forest Service	Implement Anadromous Fish Habitat Policy and Implementation Guide and Salmon Summit habitat guidelines.	9/1/92		
Activity Summary:						
4/8/92 FS and BLM provided brief status report			Contacts: Gordon Haugen USFS	503/326-4929		
4/8/92 FS and BLM provided brief status report						
6/22/92 Agencies have provided staffing and funding needs						
6/22/92 Agencies have provided staffing and funding needs						
7/29/92 FS provided detail of new process for project review.						
1/1/93 Agencies reported progress to Senator Hatfield						
5/3/93 BLM provided update of plan for Implementation						
6.6A.10	73	Bonerville Implementing Entities	Fund acquisition and management of conservation easements and critical water rights	6/30/93		
Activity Summary:						
5/5/93 Forest Service provided initial priorities			Contacts:			
6.6A.2 73 Bureau of Land Management Forest Service						
Initiate recovery actions in streams where water quality standards or land management plan objectives for fish habitat and water quality are not being met.						
Activity Summary:						
5/3/93 BLM provided Council plan for completing work			Contacts:			
6.6A.3 73 Bureau of Land Management Forest Service						
Review and, as necessary, amend existing land management plans to incorporate the Council's habitat objectives and performance standards						
Activity Summary:						
5/3/93 BLM provided Council a work schedule for completing plan amendments			Contacts:	12/31/96		
6.6A.4 73 Federal Land Managers						
Revise livestock management plans on federal lands for riparian enhancement			Contacts: Gordon Haugen USFS	503/326-4929		
Activity Summary:						
5/5/92 Agencies reported schedule status and funding limits.						
2/1/93 Forest Service will not update plans; will rely on enforcing existing standards						
5/3/93 BLM plans completion by 1997						
6.6A.5	73	Federal Land Managers	Report on the effect of land management actions on salmon	3/15/93		
Activity Summary:						
			Contacts:			

Measure	Pg	Entity	Action	Action Date
6.6A.6	73	States Tribes	Report on land use best management practices	6/30/93
Activity Summary:			Contacts:	
6.6A.7	73	Land Managers	Report progress on review and revision of mining laws to promote fish productivity	6/30/93
Activity Summary:			Contacts:	
6.6A.8	73	Federal Land Managers States Tribes	Report progress on identification and protection of permanent riparian management areas for perennial and intermittent streams contributing to fish production	6/30/93
Activity Summary:			Contacts:	
6.6A.9a	73	Federal Agencies	Provide list to Council of lands that could be exchanged for riparian protection	12/31/93
Activity Summary:			Contacts:	
7/29/92 Status reports received, no actual lists yet.			Gordon Haugen USFS	503/326-4929
4/14/93 Forest Service provided report to the Council				
6.6A.9b	73	Federal government States	Report on progress of development of programs to explore land exchanges and purchases for riparian protection	12/31/93
Activity Summary:			Contacts:	
4/8/92 FS and BLM provided brief status report, lists not completed			Gordon Haugen USFS	503/326-4929
5/5/93 Forest Service provided lists				
6.6B.1	74	Idaho Oregon Washington	Review state water quality standards and compliance. Report to Council the findings and limitations in resources	6/30/92
Activity Summary:			Contacts:	
6.6B.10	75	Council Environmental Protection Agency	Submit study plan for priority water quality problems	4/15/93
Activity Summary:			Contacts:	
7/29/92 EPA reported to Council. Funding source needed for additional work			Bill Sobolewski EPA	503/326-2651
4/1/93 EPA provided status update. Receiving broad participation from regional agencies, b/c lack of funding limits ability to proceed. Requested Council support for additional funding.				

Measure	Fg	Entity	Action	Action Date
6.6B.11	75	States	Explore expanding scope of the Columbia River Estuary Bi-State Study to include all of the Columbia River Basin	
Activity Summary: 2/193 Council is now represented on bi-state commission				
6.6B.12	75		Continue discussions to capture efficiencies in river flow	
Activity Summary:				
6.6B.13a	75	Bonneville Reclamation States	Provide work plan for regional assessment of water availability in the Columbia River and its tributaries	10/31/92
Activity Summary: 6/23/92 State water resource directors briefed Council on cooperative work to date				
6.6B.13b	75	Bonneville Reclamation States	Submit regional assessment of water availability in the Columbia River and its tributaries	503/222-5161 12/31/93
Activity Summary: 6/23/92 State water resource directors met with Council to review current work and desired scope of effort.				
6.6B.14	75	Council	Fund a study of watersheds where water availability is a limiting factor	
Activity Summary: 3/25/93 Council report 93-8 published				
6.6B.15	75	Corps	Complete feasibility study for temperature control at Detroit dam.	503/222-5161 3/31/96
Activity Summary:				
6.6B.16	76	Corps	Complete feasibility study for temperature control at Cougar and Blue River dams	3/31/95
Activity Summary:				
6.6B.17	76	Bureau Corps Fish Managers	Begin work on a storage agreement to assure minimum flows for fish below Willamette River projects	
Activity Summary:				

Measure	Project	Entity	Action	Action Date
6.6B.18	76	Bonneville	Provide power or reimbursement for power cost to Bureau pumping plants designed for Umatilla Basin Project water exchange	
Activity Summary: 12/1992 Replacement power funded				
6.6B.19	76	Environmental Protection Agency Others	Submit project design for Grande Ronde water temperature demonstration project	4/15/93
Activity Summary: 1/1/93 EPA implementing project				
6.6B.2	74	Federal Agencies States Tribes	Improve enforcement of water use requirements for fish conditions	
Activity Summary: 2/1/93 Oregon assigned enforcement officer in N.E. Oregon				
6.6B.3	74	States	Restrict new water allocations and develop authorities to protect water rights for salmon passage and habitat	
Activity Summary: 3/12/92 Washington withdrew unappropriated Columbia and Snake tributaries effective 12/20/91 6/2/92 Idaho restricted new allocations 6/23/92 States briefed Council on status. 7/29/92 Oregon considering withdrawals				
6.6B.4	74	Bonneville Implementing Entities	Report progress on acquiring and maintaining critical water rights for fish	6/30/93
Activity Summary:				
6.6B.5	74	Idaho Oregon Reclamation Washington	Report adequacy of existing law and administration for protecting enhanced instream flows for fish	6/30/93
Activity Summary:				

Measure	Pg	Entity	Action	Action Date
6.6B.7	74	Reclamation	Initiate cooperative effort to select and design demonstration water conservation projects	12/31/91
Activity Summary:				
12/7/92 Bureau developing projects on Wailowa in Oregon, and working on Lemhi in Idaho, Yakima in Washington			Contacts: Onni Perala	208/334-1591
6.6B.9	75	Council Environmental Protection Agency	Secure funding and establish a mechanism to coordinate Columbia Basin water quality activities related to fish and wildlife.	4/15/93
Activity Summary:				
12/7/92 Congress provided directive language, but no additional funding for FY '93			Contacts:	
6.6C.1	76	Fish Managers	Develop prioritized list of tributary screening and passage projects	
Activity Summary:				
2/25/92 Prioritized list presented to Fish 4			Contacts:	
3/6/92 Request for clarification sent by Council staff.			Jack Donaldson	503/326-7031
5/5/92 Bonneville funding screen shops and design; NEPA needed for participation in actual screening;			Tom Clune	503/230-5724
5/29/92 Work in progress on Salmon, Grande Ronde tribu.				
7/23/92 CBFWA sent status report to Council.				
10/9/92 Contract for Idaho screen shop funded.				
12/7/92 Bonneville funding screen shops and design; NEPA needed for participation in actual screening;				
4/20/93 Bonneville funded screening coordinator position at CBFWA (part of coordination contract)			Contacts:	
6.6C.4	77	NMFS	Identify resources needed to complete installation of tributary screens and passage facilities by 1995. Review operation plan with Council	2/1/92
Activity Summary:				
12/7/92 Current list not complete				
6.6C.5	77	Federal Land Managers Reclamation	Report on screening and passage improvement on federal lands	3/1/92
Activity Summary:				
3/16/92 Bureau provided report for its facilities (See Fish Facilities Improvement Program Report, March 1992);			Contacts:	
5/5/92 BLM & FS inventories continuing.			Gordon Haugen	503/326-4929
7/29/92 FS inventories supplied to screening committee			Forest Service	

Measure	Pg	Entity	Action	Action Date
6.6C.6a	77	Corps	Resume program to inspect all underwater diversions in the mainstem Columbia and Snake rivers for screening effectiveness.	1/31/93
Activity Summary:				
1/1/93	Corps	notified diversers of screening responsibilities.		
6.6C.6b	77	Corps	Repair, update and install screens on all underwater diversions in the mainstem of the Columbia and Snake rivers.	503/326-3829 12/31/95
Activity Summary:				
6.6D.1	78	Bonneville	Propose alternative procedure for funding high priority habitat projects	12/31/92
Activity Summary:				
12/7/92			Follows habitat project criteria development	
3/24/93			Awaits discussion at Policy Review Group	
3/24/93			Discussed at March Policy Review Group meeting	
7.1B.1	80	Bonneville Fish Manager Others	Expand implementation planning process to involve all measures	
Activity Summary:				
1/16/92			Discussions initiated	
7.1B.5	80	Federal Government States Tribes	Designate lead entities for program implementation and propose funding sources and levels	1/1/93
Activity Summary:				
7.2A.1	82	Bonneville	Submit annual coordinated program monitoring report	
Activity Summary:				
7.2B.1a	82	Independent Scientific Group	Submit work plan and review process for program evaluation	6/15/93
Activity Summary:				
8/4/93			Council, Bonneville and others discussing establishing ISG	
7.2B.1b	82	Independent Scientific Group	Submit first program evaluation report	503/230-5384 6/15/94
Activity Summary:				
7.2B.1b	82	Independent Scientific Group	Submit first program evaluation report	503/230-5384 6/15/94
Activity Summary:				
7.2B.1b	82	Independent Scientific Group	Submit first program evaluation report	503/230-5384 6/15/94
Activity Summary:				

Measure	Pg	Entity	Action	Action Date
7.2C.1	82	Independent Scientific Group	Identify key uncertainties of program measures	
Activity Summary:				
2/24/93 Scientific Review Group has released report				
7.2D.1	82	Council	Monitor the Endangered Species Act process to ensure that program monitoring and evaluation reports are considered.	Contacts: John Volkman NPPC 503/222-5161
Activity Summary:				
Ongoing				
7.2E.1	82	Council	Continue to review program measures for prioritization, cost-effectiveness, and biological effectiveness	Contacts: Doug Marler Council 503/222-5161
Activity Summary:				
2/24/93 Bonneville submitted cost-effectiveness amendment for phase four consideration; initial consultation held				
7.2F.1	82	Council	Report ways to reduce process and increase efficiency in the structure of committees and groups involved in the fish program	8/31/93
Activity Summary:				
Contacts:				
7.3A.1	83	Bonneville Fish Managers Others	Provide a progress report on development of analytical tools to assist decision making and program evaluation	7/31/93
Activity Summary:				
Contacts:				
7.4.1	83	Council	Circulate for public review analysis of the relative contributions of various human activities to fish mortality	
Activity Summary:				
Contacts:				
7.5	84	Bonneville Corps	Publish results from studies performed under program, hold annual symposium.	3/31/93
Activity Summary:				
12/1/92 Bonneville project symposium held September '92; Corps review in October 2/24/93 Next symposium tentatively scheduled for January, '94				
Contacts:				
Jerry Bouck Bonneville 503/230-5213				

Measure	Pg	Entity	Action	Action Date
7.6.1a	84	Bonneville	Fund Coordinated Information System	
Activity Summary:				
3/31/92 Work continuing				Contacts: Kasi Boale Bonneville 503/230-3694
8/27/92 BPA reduced program funding				
1/1/93 Contract revised				
8/4/93 Bonneville intends to reduce funding in FY '94				
7.6.1b	84	Coordinated Information System	Release revised Stock Assessment Report	10/31/92
Activity Summary:				
2/24/93 Completed for 1992. Being printed for distribution by May				Contacts:
7.7.1	85	Bonneville	Develop project database to track projects by geographic location and other categories	9/30/93
Activity Summary:				
4/15/92 Data needs assessment initiated.				Contacts: Martin Larson Bonneville 503/230-7683
8/27/92 Bonneville schedules completion for 8/93				
2/24/93 Bonneville projects completion by 10/93				
8.1	88	Council NIMFS	Inventory economic impacts, prepare recommendations	7/31/92
Activity Summary:				
6/2/92 Comment on Council issue paper 92-08 closed.				Contacts: Doug Marker NPPC 503/222-5161
7/29/92 Council supported appropriation for mitigation of 1992 drawdown test damage. Will continue long term work for transitional approaches.				

Mr. DEFAZIO. Thank you. Since there is a minute left, Mr. Webb, do you want to add anything at the outset, or do you just want to respond to questions?

Mr. WEBB. Just questions.

Mr. DEFAZIO. Okay. Again, I thank the gentleman for his succinct testimony. I have a number of questions and I will defer to my colleague, Mr. LaRocco, and we may do a couple of rounds here. We will do 10-minute rounds on questions for these folks, because I have quite a few.

You mentioned the congressional oversight, Mr. Grace, and to see that full implementation happens. I could not help but notice a rather public exchange of letters and concerns recently between BPA and the Council regarding the fish and wildlife funding. Has that been resolved to the satisfaction of the Council at this point in time?

Mr. GRACE. It has.

Mr. DEFAZIO. It has.

Mr. GRACE. Yes.

Mr. DEFAZIO. Okay. To Mr. Hardy, would you like to comment on the implementation of the resident fish and wildlife program? And I have got to start with a caveat. You know, I cannot resist being a bit parochial. I do represent the State of Oregon and it seems that the other States in the operating region have entered into agreements regarding resident fish and wildlife, somewhat different agreements I understand, for Idaho and Montana, versus Washington that recently got a large allocation of funds from BPA, but that suddenly when it comes time for the Oregon resident fish and wildlife program, there is no more money. Could I get a timetable and some idea of BPA's commitment? I am certain there must be some resident fish and wildlife concerns in Oregon if there are such concerns in other States.

Mr. HARDY. Yes, Mr. Chairman. Let me describe what we have done so far and how the Oregon alternative fits into that.

Mr. DEFAZIO. As briefly as possible, yes.

Mr. HARDY. We have developed a trust for the State of Montana, which basically fulfills all of our obligations there, and a trust for the Dworshak mitigation for the State of Idaho. We have also developed an interim wildlife agreement for the State of Washington. We have provided the State of Oregon with \$150,000 to develop their negotiating strategy to take to the table to engage us in negotiations on a wildlife trust for Oregon. The ball is in Oregon's court and has been for the last year. I am assured by Mr. Duncan and others that they are coming to the table quickly, and I have indicated our openness to engage them on a discussion of a trust, a wildlife trust for the State of Oregon. If that does not work, then we can fall back to the project-by-project approach that the Council has used before.

We have funded wildlife projects in Oregon—Burlington Bottoms and Conforth Ranch, to cite two of four or five projects. We are ready to go and I think it is more a case of getting the requisite things together for the State to be prepared to get to the negotiating table. Oregon's council members have indicated that they are anxious to do that and anticipate doing that in the relatively near future.

Mr. DEFAZIO. Well, I was concerned with the exchange of letters regarding a rather small amount of money, which is \$5 million, for full implementation of the Council's plan as they see it, during the next budget cycle, that whether or not there was any flexibility in the budget to fund a trust or Oregon programs during this upcoming biennium.

Mr. HARDY. I think there is considerable flexibility to fund a trust because I can capitalize a trust, and hence the rate impacts in 1994-1995 are de minimis.

Mr. DEFAZIO. What is the bottom line in getting to a trust? My understanding of the Idaho and Montana agreements is that in fact there was some sort of hold-harmless or sufficiency clause. Is that what you are requiring from Washington and Oregon?

Mr. HARDY. That is what we would be seeking in a trust arrangement.

Mr. DEFAZIO. Okay, but Washington does not have a trust arrangement.

Mr. HARDY. That is right, they do not have a trust arrangement and they—

Mr. DEFAZIO. So they got a \$43 million allocation without a trust arrangement?

Mr. HARDY. We settled an interim agreement with them for 5 years. We tried for a year and a half to negotiate a trust agreement with them, but simply could not get to yes. So rather than abandoning that, we settled on an interim agreement. I have not precluded that strategy in this case. We concluded that negotiation in mid-December of last year. Had it been 2 months later, given our financial conditions, I would not have signed that agreement. But, I had made a commitment, and we do not back away from commitments that we make.

I am not anxious to pursue an interim wildlife agreement at this stage, given both our financial condition and the fact I cannot capitalize it. I have got to expense it all, so it goes right into rates. The State has indicated to me that they too are anxious to proceed with a trust because that offers the State substantial advantages in terms of funding flexibility.

Mr. DEFAZIO. Now do you intend these hold-harmless clauses to take into account anything and everything? What is the term of the hold-harmless clause in the case of Montana and Idaho?

Mr. HARDY. The term of the agreements I believe is 50-60 years, I think it is 60 years in the case of Montana and 50 years in the case of the Dworshak.

Mr. DEFAZIO. So it is a form of sufficiency that there will be no further consideration to any fish and wildlife mitigation for resident populations in those States?

Mr. HARDY. As they affected the reservoirs, that we are responsible for, yes. The way we had to structure the clauses, particularly in Idaho, was that you cannot have an ironclad hold-harmless clause. But, we agreed with the State that if there were some changed conditions further on down the line that would be the cause to come back and say some additional mitigation is required, and that the State would share in the financial responsibility along with Bonneville. We figured it would be sufficient to have that kind

of shared responsibility to create the kind of circumstances giving us the confidence to sign that kind of agreement.

Mr. DEFAZIO. Okay, if we can take this one step further; there has been some concern, and it seems to me this would fit some of your objectives in terms of reducing the burden of a large number of employees of BPA and streamlining your budget and operations, and some of the implementation concerns I am hearing from the Council. I mean, would BPA look at some sort of lump sum transfer of its fish and wildlife responsibilities to a designated agency, perhaps one of these new forums that might come about or whatever, to, you know, handle the expenditures and the implementation of the necessary measures on an ongoing basis?

Mr. HARDY. We would be interested in discussing that and have indicated an openness to that effect. I think there are two issues of providing a lump sum—one is accountability; and the other is certainty. Right now we have a large staff, primarily to make sure programs are implemented in a way where we are accountable for program results. And you are right, that does require a significant amount of staff time. If we could move to a concept in the fish area that is the parallel to the wildlife trusts we were just discussing, we would not have nearly the staff requirements. The other thing we would have, via the hold-harmless mechanism or some similar mechanism, is the certainty that our obligations, at least under Section 4(h) of the Power Act, for that particular ecosystem or particular reservoir area, were fulfilled. That certainty, in terms of fulfilling our obligations, is worth a lot to us.

Mr. DEFAZIO. How about doing this say over a 5- or 10-year period with projections and measurable results say to accomplish the Council's plan over a 5- or 10-year period, with real-time reevaluation as we go along? I mean if at any point we figure out we are funding things that do not work or are detrimental, we should have a great deal of flexibility to withdraw from those things.

Mr. HARDY. I think that is a possibility. That has not, however, been the practice, I must say, in the past few years. We have had a lot of glowing words about adaptive management, yet, we have not collected enough data to make the initial determinations in many cases whether something was effective or not. And then we have not always discontinued it, if it was not.

I think that holds some possibilities. If you had clear goals and you really could measure results, that is a way to pursue that kind of an objective. Ultimately, even under that scheme, I expect we are going to be held accountable for the results. But, if we have got some other approach where others are accountable for the results and things can truly be changed, we are very open to discussing those.

Mr. DEFAZIO. My time has expired. I will at this point turn to Mr. LaRocco, but we will come back to this.

Mr. LAROCOCO. Thank you, Mr. Chairman.

Chairman Grace, what legislative or institutional changes are needed to ensure that the BPA and other federal agencies will carry out the Council's *Strategy for Salmon*? Do you have any suggestions for this committee or for the Congress?

Mr. GRACE. I do not have any specific ones at this time. Frankly speaking, my own viewpoint, I think the mechanisms are in place.

I think as we improve communications, which we have done on this problem over the letters recently, I think we have found that that tension that you spoke of, the creative tension, the dynamic tension between the Council and Bonneville, actually fractured to a point that it was detrimental, mainly because of communications, good communications. I think we have re-established those and——

Mr. LAROCO. What has changed institutionally; why is the communication improving?

Mr. GRACE. I think in that tension that you speak of, sometimes personalities get too strong and that objectivity goes out the window. And I think we have been able to regain the objectivity.

Mr. LAROCO. Do you think that the Council's plan is going to be followed or will it be more like a salmon policy salad bar with the federal agencies just choosing what they want as they go through the line?

Mr. GRACE. Personally I think it will be followed. I think there will always be some question by individuals what part is being followed—it is human. I understand that. I think it will be followed. I do not have a real concern about it myself.

Mr. LAROCO. Administrator Hardy, do you plan to follow the Council's plan to the letter, or will there be parts of the Council's plan now that you will not implement? What can you tell us?

Mr. HARDY. As we have assured the Council on numerous occasions, yes, we plan to follow the Council's plan and fully implement the measures that are contained therein. We have reiterated that even in the most recent exchange of letters that the Chairman referenced.

Mr. LAROCO. My concern all along has been that, you know, we operate in not a crisis mode. We want things to be measured, and we want them to be scientific, but we want some emphasis on this as if it is a crisis and an emergency. And you had mentioned, Administrator Hardy, in your testimony that what we had to do was take bold action, and I think the frustration that came out clearly in the Governor's testimony was the fact that the federal agencies were not coordinating. There were turf battles; there was miscommunication; we were dawdling, if you will, as we attack this issue.

I would like to know, with regard to the \$300 million a year, what you can identify as being dedicated to the juvenile salmon problem. Can you enlighten me on that? I think there has been a lot of focus on the juveniles.

Mr. HARDY. I would refer you to the chart at the left. I would say roughly \$150 million of the \$300 million is flow or spill related, and almost all of that—really I think all of it—is dedicated towards juvenile salmon of one species or another. In addition to that \$150 million, there is probably, I do not know exactly another \$50 million to \$100 million, depending upon how you count. You could attribute to juvenile salmon some of the Council's programmatic measures and some of the other funding we provide for fish bypass screens for the Corps on their projects. So I would say you are in the neighborhood of probably \$200 million of the \$300 million, maybe somewhat more than that, that is specifically directed to juvenile salmon survival.

Mr. LAROCO. I would like to ask a question of both of you. One of the things about ecosystem management or management in general is that it has to look at sustainable economies, sustainable communities. Any plan has to have a buy-in by the local people. And there has been a lot of emphasis placed on science. And I think you mentioned, Mr. Chairman, that you are going to have an independent scientific panel.

Is there going to be any peer review of the scientific panel so that the citizens of Idaho can rely on the science, or that we are going to have groups that just want to, you know, for their own special interests, attack this plan, to have the status quo, who will have rent-a-scientist, rent-a-biologist, and will have these competing scientific opinions. What are we going to do about that? How are we going to get the people in my District, in Weippe and Grangeville and Orofino and Kamei and Lewiston to, buy into the scientific plan that we are going to follow here, so that we know that science is really directing this, true science?

Mr. GRACE. I think that is one of the challenges we have on the Council right now and I think we are very willing to try to work through that. I wish I could give you the answer how we are going to do it, but there will be peer review, in our estimation.

Would you like to speak to that at all, Jay?

Mr. WEBB. Yes, I sure would. Mr. Chairman, Congressman LaRocco, you know, I have been on the Council just a short time, but I know the scientific exactness and measurable results, that sort of thing. Every time the Council proceeds with a project that seems to be thrown up as a barrier.

Mr. LAROCO. Right, that is why I asked the question.

Mr. WEBB. Yesterday we addressed this in Fish IV, that the Council is going to immediately define, at least in the Council's posture, what we will do to define what measurable scientific results are. Obviously, the science is not exact now. I wonder if it will ever be exact. So we have got to define what we will do when the science is not perfect. Because you know better than I, Congressman, the time is not here; we cannot keep studying and studying and delaying and delaying, waiting for the science.

Obviously, you have got to consider science, but what I am trying to get to, we are going to define exactly how the Council itself will operate under these constraints and go from there. Perhaps the whole community, the whole institution, relevant to the salmon will buy on.

Mr. LAROCO. Well for the champions of the people who speak about the re-establishment of the runs and so forth, if we state publicly that the science is changing—you testified that the science is changing—if the scientists believe that the science is changing and that it is not absolute, then it seems like we will be able to get consensus and buy in from people in the affected States that yes, this is an absolute that it is changing, if you will, and that we are moving along with that. But if there is a difference on the scientific approach between the agencies, then this whole thing will disintegrate, it seems to me. And Administrator Hardy, I direct the question at you too, because I think you have 77 people working on fish and wildlife recovery, and they have a number of people, the Corps of Engineers—it has got to be this inter-relatedness that

is finally going to work in this region. I mean we have all the regional problems that have always been there, but the Governor's testimony again is saying to us on the oversight task force, this thing is not working very well. But if science drives it, what are we going to do to get that confidence, that peer review that says that other scientists believe what these people are saying?

Mr. HARDY. Yes, sir. I would suggest this, that ultimately the National Marine Fisheries Service is the driver of the boat, the truck, or whatever. They are the regulatory agency that has the enforcement power, at least for salmon recovery, under the Endangered Species Act.

Mr. LAROCO. I met somebody from NMFS the other day, I had never met anybody from NMFS.

Mr. HARDY. You are about to in the next panel.

Mr. LAROCO. I know. It was this stealth agency that is driving a lot in our region. [Laughter.]

Mr. HARDY. They are going to get a lot of visibility, I suspect, and ultimately, they will make the call. You asked about what science is good science, bad science, conflicting science. NMFS has named a recovery team of the six best biologists in this region, to address that issue. They are going to release their recommendations in another month or so, I believe. Hopefully that will form the basis—I hope a definitive basis—for them to take some action. Ultimately they are the ones, I think, that will determine what happens for at least the three listed salmon stocks that we have now, and any other listed anadromous fish stocks. So given the powers that they have under the Endangered Species Act and the enormous amount of discretion which the courts and the Act accords them as the regulatory agency in charge, I think you have got an entity that can force those kinds of decisions. There are some problems in meshing that with the Council's process, and within other conflicting ESA listings like potential resident fish listings where Fish & Wildlife Service is the agency in charge, but at least for the immediate future for the Snake River stocks, I think how we get to wherever it is we are going, and who makes that decision, is pretty clear.

Mr. LAROCO. Well Mr. Chairman, there is a red light on, I think that is probably for me.

Mr. DEFAZIO. I am going to follow on your line of questioning here, so I will just pick up.

Mr. LAROCO. Oh, okay, well I yield to you then, Mr. Chairman.

Mr. DEFAZIO. Thank you.

I would like to follow up on the gentleman's line of questioning because I think it is essential and I do not think that we have quite gotten there with the Recovery Plan or even NMFS' involvement. It seems to me we used to have something under the Water Resources Act called the Northwest River Basins Commission. We have got the Corps of Engineers, and I may ask them about this, out there trying to look at 14 possible configurations of the hydrosystem and its operation and all the other impacts on the basin and the salmon. And I do not know whether they are perhaps trying to recreate something that already once existed, which was banished by Ronald Reagan and maybe we should look at something like that perhaps with a modified charge, but we have al-

ready got standing authorization under the Water Resources Act to have a Northwest River Basins Commission. Could that perform the function of the concerns that Mr. LaRocco has put forth? We have got the Pacific Northwest Coordinating Agreement and I read the people's answers and analysis of that and they say, well gee, any one agency is not just bound by power production, they can raise concerns about other obligations they have, like fish, but it is not really encouraged. It seems to me there needs to be a more comprehensive forum.

Mr. HARDY. Well that was really one of the principal driving forces behind the creation of the forum concept in the system operation review, which is the process that the Corps—

Mr. DEFAZIO. But are we recreating something that already is authorized and existed previously? Could we—

Mr. HARDY. It is possible you could end up with something like the Pacific Northwest River Basins Commission. There are, as is discussed in the System Operations Review document, the forum document, a number of other models. Ohio River Commission, Chesapeake Bay program, and San Francisco has one. There are a number of other models around the country of federal, state, and citizen bodies to address this kind of issue. I think that in fact we have the makings of what we need right now. The Council has its Fish Operations Executive Committee, which really has all of the parties represented. It has the federal agencies, it has the Council, and it has the States and tribal representatives. Perhaps not at exactly the right level—we have more technical folks and we probably need policy folks, but some variant of FOEC, which reconciles the Endangered Species Act mandates and the Northwest Power Act mandates.

Mr. DEFAZIO. But you heard the frustration of Mr. Grace, or his concern about more congressional oversight for implementation of their recommendations, so I do not know how this technical fish committee is going to overcome those large agencies.

Mr. HARDY. It needs to evolve or grow or be changed into a policy body. Right now it is more of a technical body in some cases than a policy body. But you have all the interests there who need to be there to make decisions.

Mr. DEFAZIO. So a high-level policy body that could perhaps encourage or require memorandums of understanding between the agencies incorporating the recommendations of the Council's Recovery Plan and the overall recovery plan?

Mr. HARDY. That is right, something like that could reconcile those, and where there were conflicts, it could work them out. That is really the purpose of FOEC—to try to provide a forum to do that, and to the Council's credit, they initiated that process, recognizing that conflict in phase two, I think.

Mr. DEFAZIO. Why do we not turn to Mr. Grace for some comment on that, or Mr. Webb, whoever would like to respond. I realize you are a relatively new member, but looking at that, how would you get to these concerns, the concerns you have expressed about the implementation, about the discussion we just had.

Mr. WEBB. Well I might say, Mr. Chairman, I think this should be said on behalf of the Council, earlier this morning, I think all of the Council, most of the Council are most appreciative of con-

gressional oversight. Already, you know, in a specific sense, I see the big problem is the science of salmon, and in a general sense it is communication. As far as I can tell, there has been damned little actual communication between the players. I mean real meaningful stuff. And since you got involved, next week we are going to have a meeting with some of the utilities sitting knees under the same table—and I welcome this. I think it is excellent, and I would just ask that if there is any way you can keep your oversight task force going for a long period of time, we would certainly appreciate it. I welcome your oversight; it gives us some clout.

Mr. DEFAZIO. Well I think perhaps that is both a compliment and a Chinese curse. [Laughter.]

But I thank you for those kind words, and actually I think Mr. LaRocco and I would welcome some advocacy particularly with perhaps one of the most prominent members of the Northwest delegation, in the Northwest, regarding the need for this task force to continue its tenure, because the new revised reform rules of the House, would have this committee expire in the end of October. I am hoping for an extension of our jurisdiction. And we would appreciate anyone who cares to communicate with anyone of our neighbors in one of those northwestern States in the corner on the east side of the mountains—

[Laughter.]

Mr. DEFAZIO. Mr. Grace.

Mr. GRACE. On the issue of the science, I really think there is a genuine desire by almost all the entities at this time. Science has been used to block actions, and I do not see that any more through most of the entities. I think everybody has a genuine desire to try to come together some way and solve the problems and use the best science we have got. I know in the past that has caused a lot of foot dragging and all, but I do not see that any more. I think most of us are worn and tired of the battle and would like to get on towards the end and actually see the recovery.

Mr. LAROCOCO. If you would yield to me, Mr. Chairman.

Mr. DEFAZIO. It is your time.

Mr. LAROCOCO. I think the key here is, if we are experimenting, if it is worth moving ahead with something that is bold, that addresses issues in a timely manner and the scientists are in agreement on that, it has to be loud and clear that we are moving ahead. But this is not a roll of the dice, it is not a gamble, that there is some probability that some measures might result in new information when the timing is right, when migration is happening—all of these things. You know, fish do not wait when the juveniles are migrating. You know, there are propitious times to do these things and you have got to stick your neck out a little bit for these fish.

Mr. GRACE. I see new awareness among people. In the almost 5 years that I have been on the Council, I see a change in attitude there that I think is for the better.

Mr. LAROCOCO. Yes. Well change is slow, I mean there are a lot of things that we do not want to accept. And the ESA hits us upside the head like a 2 by 4 and then that is used as excuses. I do not know, you know, if you agree with what the Governor said; his testimony said people use the ESA for further delay to meet their personal agendas and so forth.

Mr. GRACE. It has definitely been done, but I do see a will to work together.

Mr. LAROCCO. Mr. Chairman, I yield back.

Mr. DEFAZIO. Great. I have some more questions. Thank you, I thank the gentleman for yielding back to me.

Mr. Grace, I am headed back to some other questions, but I cannot help but bring this up. My understanding is there is a formal process for disputes between the Council and BPA. And I am a bit curious, you know, why you choose to go to the Federal Energy Regulatory Commission in the rate case as opposed to triggering a finding of inconsistency. I mean, that is one of the strongest tools you are given in the Act to deal with BPA. Has it ever been used by the Council in any of BPA's actions?

Mr. GRACE. Not to my knowledge.

Mr. DEFAZIO. Okay.

Mr. GRACE. And I think a lot of it was miscommunications in the Council itself.

Mr. DEFAZIO. Okay, but in terms of asking for additional congressional oversight—and again, certainly I agree with Mr. Webb about how effective we have been already—but in looking also at some of the tools you have been given, I mean that is a pretty powerful tool.

Mr. GRACE. It is.

Mr. DEFAZIO. Granted it is a little strange in that it is again, you know, the fox and hen house thing, because you get to file for inconsistency, you get a hearing and a response from BPA and then of course the Administrator makes the final decision. Maybe there is another way to determine who makes the final decision there in maybe a little more impartial forum, although I know Randy is very good at putting on a different hat which changes his head to be totally impartial. When he does the rate case, you know, he is an impartial person.

But could you comment on that?

Mr. GRACE. I can comment and Mr. Webb would like to comment on that.

I can from the standpoint that I was in the minority on the FERC letter. I thought there was a better way to go, but—

Mr. DEFAZIO. Okay, perhaps Mr. Webb—

Mr. WEBB. Mr. Chairman, Congressman, I am totally satisfied that at this point in time, there is a majority of the council members that feel we were somewhat adrift and people were not listening to us. We wanted to be more direct, more resolute, more positive, more effective. And that precipitated the FERC entre. People have taken exception with this, but at that time it was very much just a place-holder proceeding, because we had to move within a 3-day period to sustain that remedy if we chose it.

As to the 4(i) proceeding in the Power Act that you are alluding to, Mr. Chairman, you are right on target, that is a very effective proceeding seeking remedy, if we chose to go that route. And my sense is that perhaps we would have proceeded on that course, but for this task force's oversight. And again, I say for the first time, I think people are looking to what the *Strategy for Salmon* speaks to and addresses.

I want to report to your task force that I am pleased with what is on the horizon. Next week, some of us are meeting with the Administrator and some of the utilities. That is a first, as far as I know, certainly in my short tenure, and I welcome it. This is what should have happened long ago, and that is why, if you can keep your ball in the court, I would sure appreciate it.

Mr. DEFAZIO. So it is sort of a sea change or perhaps in this case we should talk about in-stream flows, but something along those lines. Okay.

Another question directed to the council members, again talking about being results oriented. It seems to me you could have a more measurable results-oriented program. I mean it is frustrating to measure the results, particularly when we deal with life cycles and we do not know whether what exactly something we do today, means in terms of the returns particularly even when you add on the parameters like last year's drought, El Nino, whatever. That is something we are going to have to continue to deal with, but that does not mean we should get into paralysis.

And it seems to me that your plan calls for combinations of flows and drawdowns and in your minds, or actually in the plan, you have an objective; if they are fully implemented you are going to get flows of a certain magnitude and velocities of a certain magnitude. I am wondering, rather than the targets—you know, let us have these flows, let us have these drawdowns—why didn't you establish an aggregate target and say, okay, this is the velocity, this is the flows we want to achieve, something a little harder. That is measurable.

If everything you had suggested was done, we would get to that point, but you did not say, okay, we think we have to get to this point, here is the point, it is measurable, now you go out and do whatever combination of flows and drawdown is necessary to reach that.

Mr. GRACE. And I think what you are referring to is to do what NMFS ultimately did: say we need so much water at this point at a given time in the river. And frankly, at the time we made our recommendations, and I am still not certain that we have enough knowledge to know whether that can be done and is do-able in different years, to leave water remaining in the reservoirs for succeeding years. It is much more complicated than just saying we need so much water at this point in time at a certain place in the river.

But we considered that and collectively chose not to go that way in our *Strategy for Salmon*. We preferred to make a certain amount of water available and let the agencies that had the knowledge, use that to the best of their ability. In other words, this is your bank account, you can withdraw it until it is empty and start another year, because otherwise, I guess parochially from my standpoint, from Montana, I am real concerned about how all of these actions are going to affect the resident fish and wildlife in the State of Montana in our reservoirs. But if you change one reservoir's action, you are going to change others. There is no—

Mr. DEFAZIO. I understand, but this goes back to the earlier salad bar question—I think it was Mr. LaRocco's question—about, you know, this would be a way to say there is going to be a plate of food on the table at the end. I am not saying you should build

something that is absolutely rigid; yes, you are right, we cannot control nature, drought and those sorts of things. There needs to be flexibility built in, contingencies; we need to incorporate evolving science and our knowledge within that science. But it just seems, given your frustration about enforceability, your frustration about measurable results, the need for oversight, this would have been a way that you could have strengthened your hand a little bit.

Mr. GRACE. That is very possible, but like I say, collectively, we chose not to go that way for a variety of reasons.

Mr. DEFAZIO. Okay, back to the Administrator for a couple of questions. Just to finish up on the last round when I was asking about the resident fish and wildlife program, you are looking at a large staff reductions. I mean, what assumptions have you made about your fish and wildlife department, which is at this point I understand 77 employees, quite large, very expensive—

Mr. HARDY. More like 60, but yes, it is.

Mr. DEFAZIO. Oh, well I saw a number 77 in the testimony.

Mr. HARDY. The Fish and Wildlife Division will be affected, as will virtually every other division and section at Bonneville. We have not targeted specific reductions in that area or in other areas, but we have set ourselves an aggregate goal based on some analysis that we have done. I cannot tell you whether the 60 will go to 50 or 20 or some other number, but it will definitely be less than it is now. And, it is not only related to the overall staffing reduction, Mr. Chairman, it will also be related to potential implementation of some of the very concepts we have been talking about earlier. If we develop wildlife trust arrangements or other types of trust arrangements where we can hand off a lump sum of money and fulfill our obligations, then I do not need nearly the kind of oversight and implementation staff that I have now, because we have got certainty of fulfilling that obligation. So, it is contingent on those two things. But, you will definitely be looking in a year or two from now at a smaller fish and wildlife staff and a smaller Bonneville overall, and you may be looking at some organizational changes within Bonneville in terms of where that staff reports and who it is responsible to, producing better performance.

Mr. DEFAZIO. It seems to me that your heightened interest in a lump sum agreement perhaps with another federal agency, NMFS or whatever, to administer the program, is a breakthrough. It is good news because it goes to an awful lot of critical concerns I have seen in the testimony about BPA's role in the process. I think if you were to make that lump sum commitment first, if it was done in concert with a coordinated forum, it would give you some predictability over a longer window, whether it be a 5-year agreement or a 10-year agreement, or whatever in terms of the lump sum agreement. So I would encourage that. But also obviously it would give you the opportunity to reduce a large number of employees.

Mr. HARDY. We clearly see those benefits. The challenge is what is the nature of the agreement that you can reach and how much certainty it has and can you in fact reach that requisite degree of certainty, given the mandates of ESA where another petition can come in and completely change the playing field. I am not sure what the answers to those questions are, but the concept, I think, is one that has enough potential benefit, that we should explore it.

My goal would be to seek arrangements that parallel on the fish side what we have been able to do with Idaho and Montana on the wildlife side, and I think we have got something if that would occur.

Mr. DEFAZIO. One last question, or perhaps two, but one anyway.

We are in Idaho, so we need to talk a little bit about these upstream water issues, and in particular it seems that BPA has a growing interest in purchase or rental sorts of agreements. Would you just expand on what you are looking at there and what BPA would be interested in? I mean you made a point I am trying to find in your testimony, kind of interesting, where—well just expand on that, maybe I will find the particular reference.

Mr. HARDY. We have been able, primarily by working with the Bureau of Reclamation, to rent surplus water from particular users in Idaho—primarily through the Bureau or directly with them in terms of some of their uncontracted storage. Mr. Pedde is one of your witnesses on a subsequent panel who is much more familiar with the details of that, but we did it to the tune of about 300,000 acre-feet this year, to provide water for some of those salmon flows. We did about 237,000 acre-feet in 1991, not as much in 1992 because it was such a dry year. So, we have done a lot of that in terms of working with the Bureau and the Idaho water users on a voluntary basis, when there is surplus water available, to rent that to provide flows. That is one aspect of the water interests that we have.

Another aspect is a little more structural and involves actually testing the concept of acquiring water rights on particular properties that we could then use for salmon flows. We have such a proposal with Skyland Farms, a ranch in Oregon that is in its final stages and I hope will be signed in the next week or two. It is a test concept for 2 years for us to lease that property and use the water (which I think is about 50,000 acre-feet), and put that back into the river. This involves both practical hurdles and institutional hurdles in terms of how that works with Idaho water laws to see if we can do something like that. And, if we can, I think that is a promising concept.

Both of these approaches are things that were suggested or required in the Council's plan, so they are part of our implementation activities. But, I think that approach, provided we can get over some of the institutional hurdles, has some considerable promise, Mr. Chairman.

Mr. DEFAZIO. Mr. LaRocco had a follow-up on that and then I will have a follow-up follow-up.

Mr. LAROCOCO. Yes, to the Administrator, last year a considerable block of Idaho water was sent down the Snake to augment flows for salmon. When this water reached the Columbia, BPA held the water, and in the Columbia the Idaho water was of no benefit to salmon, in one of the worst migration years on record. But the water was used to significantly benefit BPA's power generation capability. Why did BPA hold the water Idaho released for salmon flow augmentation when the water reached the Columbia? And I think NMFS got after you a little bit on this. Is this one of those communication problems?

Mr. HARDY. Fair question. That did not happen this year. You are right, we reached agreement with NMFS to pass all of that water through, and that happened this year, and I would expect that will probably happen in succeeding years. Why we held it in 1992 basically related to the purpose of that water; it was to get the juveniles down to the collection facilities at Lower Granite, and not to be passed through the entire system. Now there are some that are not collected, so there is a residual amount, and whether it is 10 percent or 20 percent or how many we can debate about, but the bulk of those juveniles are collected at Lower Granite and at the other collection points. That is what the water was for, to get them to collection points and then barged down below Bonneville Dam. So we did not see that it made a lot of sense to continue to flush that water through the system if the bulk of the fish were already collected. That is a point of considerable contention and dispute, centered I think primarily on your estimate of how many of the juveniles do not get collected, and hence can use that additional water. And, when we came up against that question again this year, we agreed to put the water through the system, in no small measure as a result of the controversy that attended our decision last year. We learned from that and tried to do better.

Mr. LAROCCO. Is it still guess work on how many juveniles are getting through the collection points?

Mr. HARDY. It is all guess work as far as I can tell, Mr. Congressman. We have got a lot of collection data, we have got monitoring. The Corps is probably in a better position since they do most of the monitoring, to answer the question than I, but I think even the best estimates are pretty imprecise. We can tell about mass movements, but much beyond that, our ability is limited. Although I will be the first to admit, I am not the technical expert and we do not have the staff to say they are or are not moving—the Corps does. The Fish Passage Center created by the Council are really the bodies that provide the information to us and to the Corps, the Bureau and NMFS as to when the migrations are occurring and when they need what flows. And, we have developed an in-season management regime to try to do that on a real-time basis, and every week during the migration season, there is a Wednesday conference call that NMFS hosts, to discuss what is happening now or who is migrating where, or where do we need to provide flows. That is the kind of consultation vehicle that we are trying to use to determine when we provide flows and when we do not.

Mr. LAROCCO. What are the plans for 1994, and if we are going to send this water downstream, are there any assurances for 1994 that this water will be used for velocity and flow for juveniles?

Mr. HARDY. I think that it is uncertain, given that the 1994 consultation is still in front of us. If the pattern of the 1992 to the 1993 consultation is any indicator—you can ask Gary Smith this later—NMFS will be looking for more flows, for a longer duration, and I think that question will be largely moot. Probably the other variable in this is we have yet to receive the recovery team's recommendations. How those will affect the process, I do not know. So 1994 is still something of a question mark, but however it comes out, I expect we, the Corps, and the Bureau will be continuing to

provide a substantial amount of flows, probably over and above the Council's phase two flow recommendations. But how much and what the precise timing is, there still is a lot of debate about, and I think that too will be influenced by the recovery team's recommendations as well as discussions among the federal agencies and NMFS.

Mr. LAROCO. Okay, thank you. Thank you, Mr. Chairman.

Mr. DEFAZIO. Just a last couple of follow-up questions on this and then we will move on.

We will have subsequent panels who can address some of the problematic aspects of Idaho water law. I think the point Mr. LaRocco raised is very good. You know, people want to feel that if they do contribute or sacrifice or sell and even the voluntary sale of water rights, to my understanding, in Idaho, affects your future rights in the next year. So it is not totally without cost to these people. You know, had it been communicated ahead of time, the purpose was just to move the smolts down. It is a little odd. We have got to barge salmon because there are not enough flows and then we do not have flows because we have got barges. It is hard for people to understand, mere mortals like me and I think some of the farmers; it is a little counter-intuitive.

But in any case, in looking at the Snake system, does BPA have any estimates on the potential for conservable water that could be added to flows with a combination of incentives or disincentives?

Mr. HARDY. I would like to answer that question for the record, Mr. Chairman, rather than speculate right now.

Mr. DEFAZIO. Fine.

[The information follows:]

Water conservation is not likely to be the primary means of supplying water directly to benefit migrating fish. If all limitations and restrictions to the acquisition and delivery of conserved water for the benefit of anadromous fish were lifted, our current gross estimates indicate water conservation could provide between 150,000 to 300,000 acre-feet to Lower Granite flows. Opportunities for water conservation at the Columbia Basin Project near Grand Coulee may provide slightly more than 300,000 acre-feet, but would be subject to similar constraints.

However, it is probably not reasonable to assume that difficulties in providing conserved water for fish could be easily overcome. These difficulties include the dependence of many irrigators on return flows for their diversions, the fact that most conservation measures do not reduce actual consumptive use, the interests of junior right holders who may assert claims to "pre-conservation" conditions, the timing and pattern of irrigation use in comparison to fish needs, and technical and regulatory problems in accounting for and protecting conserved water for in-stream use.

Because of these difficulties, water conservation measures are likely to have more importance in their ability to improve conditions for the individual irrigator and local economic and agricultural circumstances. While a small amount of conserved water could be made directly available for the benefit of migrating fish, conservation may be much more valuable as a tool in facilitating other types of water transactions.

The Northwest Power Planning Council directs various entities to analyze the region's ability to provide an additional one million acre-feet of water in the Snake River using various incentives, marketing devices, and storage improvements. This is likely an attainable goal over the next several years, and, while water conservation is not likely to directly supply a significant volume towards that goal, it will be an important tool in creating opportunities for the acquisition and protection of water for fish and implementing Bonneville's commitment to the regional effort to rebuild Columbia River fish stocks in a manner consistent with sound scientific principles.

Mr. DEFAZIO. I will be asking other panel members about that I guess, but I will not get too much into the irrigation discount

today because we are going to discuss that tomorrow. But that I think plays into all this. I think there is a carrot-and-stick approach that can be used to encourage more conservative practices which will have a multiplicity——

Mr. HARDY. And I would agree that you need both carrots and sticks to make this happen.

Mr. DEFAZIO. Okay. Do either of you feel there is anything we forgot to ask you? Any hardballs that we did not throw that you would like to——

Mr. GRACE. I do not think so.

Mr. DEFAZIO. Okay. [Laughter.]

Okay. Well with that then, I will thank the panel and move on to the next panel. Thank you very much.

PANEL CONSISTING OF MAJ. GEN. ERNEST J. HARRELL, COMMANDER, NORTH PACIFIC REGION, U.S. ARMY CORPS OF ENGINEERS; J. GARY SMITH, OPERATIONS DIRECTOR, NORTHWEST REGION, NATIONAL MARINE FISHERIES SERVICE, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION; AND ANTHONY VAN PELT, MEMBER, UMATILLA TRIBE FISH AND WILDLIFE COMMITTEE AND COLUMBIA RIVER INTERTRIBAL FISH COMMISSION, ACCOMPANIED BY ROB LOTHROP

Mr. DEFAZIO. I want to welcome the next panel and we have got General Harrell from the U.S. Army Corps of Engineers Regional Office; we have Gary Smith, Operations Director of NMFS—there is the NMFS person right there by the name of Smith; and Tony Van Pelt is here and is accompanied by——

Mr. VAN PELT. Mr. Rob Lothrop.

Mr. DEFAZIO. Okay, Rob Lothrop.

Okay, let us begin. The same rules as before, watch the lights, when it gets to yellow, you have got one minute left. We would appreciate it if when you see the yellow light come on, even if you have not quite finished your testimony, to sum up.

So General Harrell, you will be first.

STATEMENT OF MAJ. GEN. ERNEST HARRELL

General HARRELL. Good, thank you.

Mr. DeFazio and Mr. LaRocco, I am Major General Ernest Harrell, Commander of the North Pacific Division, U.S. Army Corps of Engineers. I appreciate the opportunity to present the Army's perspective on recovery efforts for the Columbia and Snake River salmon stocks. I believe it is very useful to participate in a forum such as this, so we can reflect on where we have been, report on progress we have made and consider the sort of questions raised in your letter of invitation.

With your approval, I will summarize a more complete report, which is provided for the record. And I hope that I am not one of the two who did not provide it earlier.

Mr. DEFAZIO. No, General, you are not. Actually I would have been happy if yours had not come in. It weighed about five pounds, but I carried it with me and read it on the plane.

General HARRELL. Thank you.

Mr. DEFAZIO. It was quite comprehensive.

General HARRELL. I would like to turn to some of the questions that you asked in your letter of invitation.

You asked if the Northwest Power Planning Council's *Strategy for Salmon* is an appropriate and sufficient framework for salmon recovery efforts in the basin. I believe the Council's program has provided a planning framework for efforts to protect, mitigate and enhance fish and wildlife affected by the hydroelectric facilities on the Columbia River and its tributaries.

However, the Council's authority to oversee specific implementation measures, from my view, is limited. The federal operating and regulating agencies—I am talking now about the Corps, the Bureau, Bonneville and FERC—are directed by Congress to act in a manner consistent with the purpose of the Power Act and other applicable laws, to provide equitable treatment for fish and wildlife. While operators of non-federal projects, water and land managers, fish and wildlife managers and resource users, whose activities affect the salmon in their rearing and ocean areas, can only be encouraged to implement program measures. I think others have said that in so many words.

The Council's fish and wildlife program is considered by the federal agencies as part of their responsibilities under the Power Act. And as some salmon stocks have been listed under the Endangered Species Act, the federal agencies must also meet the requirements of that Act and consider the Council's program in that context. Likewise, other litigation related to the Endangered Species Act has the potential to stipulate actions outside the Council's planning framework.

Your second question concerns timely completion and federal agency coordination in implementing the Council's *Strategy for Salmon*. The Council's fish and wildlife program has set out a number of planning, design, engineering, construction and operations measures for the Corps to implement. The Corps has worked closely with the Council and the other federal agencies to address those measures. For example, the Council has called upon the Corps to continue construction of juvenile fish bypass and transportation facilities at lower Columbia and Snake River projects. The Council's plan has also called upon the Corps to transport juvenile fish, as well as to carry out fish passage research and to improve adult salmon passage conditions. In all cases, we are fully implementing those measures.

Currently we are conducting the Snake River drawdown planning and testing as called for in the Council's recent amendments. The effort will take longer than the Council's program could foresee to accommodate the extensive environmental processes, engineering considerations and biological studies needed as part of the analysis. We are working closely with the Council and its Drawdown Committee to ensure a full understanding of schedules and activities as we proceed.

Concerning water conservation and other water management changes that could be made to provide increased flows for power production and salmon recovery, the Corps, BPA, and the Bureau are currently undertaking a joint Columbia River System Operation Review—I will refer to that as the SOR. The SOR is examining a number of options for operating the federal facilities in the

Columbia River basin with the goal of developing a system operating strategy to meet regional water use needs.

In the Snake River system, the lack of water storage often results in power production and salmon measures competing for the same limited available water resource. To increase the available water for both, additional storage would be necessary.

The System Configuration Study; that is a study to look at the existing system structures, to determine how we could modify those structures if needed, is looking at, among other alternatives, increased storage capacity in the Snake River basin to provide for increased flows.

Another potential action is to further reduce flood control at existing storage projects. Already the Corps has made extensive changes in the flood control requirements to make more water available for fish. The SOR analyses consider hydro system flow augmentation scenarios which could further modify system flood control. The evaluation is addressing the flood risk, economic considerations and other factors associated with the strategy.

I want to emphasize the need for additional scientific information in this area. Currently we do not know with any certainty how much salmon survival would be improved with increased flows.

We are pleased that you raised the series of questions related to the institutional arrangements for salmon recovery implementation. Several of them are in fact the very questions the Corps, BPA and the Bureau have identified and are exploring in the Columbia River Systems Operation Review. And I think that you mentioned something about that early on.

Besides the system operating strategy I have already mentioned, the SOR is evaluating alternatives in three other areas.

I am at my limit and let me close.

Mr. DEFAZIO. You have a lot to say, General, but we cannot get to it. Go ahead and sum up.

General HARRELL. The final concept you mentioned is a new entity or an existing agency designated with authority to mandate salmon recovery action. I think that is an interesting concept and we can talk about that later during your questioning.

Mr. DEFAZIO. All right.

General HARRELL. Let me just conclude by saying that I believe that our staff in the region has worked very hard and with a lot of dedication to carry out the Council's measures as well as to meet the measures and the requirements of the Endangered Species Act.

I would also add that a lot of our resources have been diverted because of the many and various lawsuits on all sides that demand our attention, not only us in the Corps, but the other federal agencies as well.

And I would close by saying that I appreciate the opportunity and the time and attention that you have given me to add my voice to the call for continued cooperation and progress to preserve and to restore Columbia as well as the Snake salmon stocks.

Thank you.

Mr. DEFAZIO. Thank you, General. Mr. Smith.

[Prepared statement of General Harrell follows.]

COMPLETE STATEMENT OF
MAJOR GENERAL ERNEST J. HARRELL
COMMANDER, NORTH PACIFIC DIVISION

BEFORE THE

HOUSE COMMITTEE ON NATURAL RESOURCES
BONNEVILLE POWER ADMINISTRATION TASK FORCE
FIELD HEARING ON
RECOVERY OF SALMON STOCKS IN THE COLUMBIA RIVER BASIN

SEPTEMBER 24, 1993

8:00 A.M.

GOLD ROOM OF THE STATE HOUSE
BOISE, IDAHO

I. INTRODUCTION

Chairman DeFazio and members of the Bonneville Power Administration Task Force, I am Major General Ernest J. Harrell, Commander of the North Pacific Division, U.S. Army Corps of Engineers. I appreciate this opportunity to present the Army's perspective on recovery efforts for Columbia and Snake River salmon stocks. A myriad of Federal, tribal and state agencies, interest groups and members of the public have invested their considerable resources in the search for solutions to the problems of declining salmon stocks. Although we are consistently meeting and talking with one another to exchange ideas on these issues, it is useful to participate in a forum such as this so we can reflect on where we've been, report on the progress we have made, examine scientific, policy and legal issues and consider the sort of questions you are asking.

II. RESPONSE TO COMMITTEE QUESTIONS

I would like to address the questions raised in your letter of invitation. My responses to all questions except Bonneville Power Administration financial condition, which I defer to the BPA for response, are presented below.

Assessment of Council Strategy

You ask if the Northwest Power Planning Council's Strategy for Salmon is an appropriate and sufficient framework for salmon recovery efforts in the Columbia River Basin. Since 1982, the Corps has worked closely with the Council to implement its fish and wildlife plan. We have had the opportunity to see first-hand the challenges faced by the Council in developing a Columbia River Basin fish and wildlife program.

The Council's program is a multi-faceted plan that explores means of better configuring and operating the Columbia River hydrosystem to benefit fish and wildlife in the basin. In so doing, the Council has recognized the need to address habitat,

harvest and hatchery issues. Moreover, the Council's process has encouraged regional input into the fish and wildlife program. Since its inception, the fish and wildlife program has been ambitious in setting out measures for the Federal implementing agencies. Accordingly, the Council's program has provided a planning framework for efforts to protect, mitigate and enhance fish and wildlife affected by the hydroelectric facilities on the Columbia River and its tributaries.

Notwithstanding, the Council's authority to oversee specific implementation measures is limited. The fish and wildlife program is implemented by the Corps of Engineers, the Bureau of Reclamation, the Bonneville Power Administration and the Federal Energy Regulatory Commission. These Federal operating and regulating agencies are directed by Congress to exercise their responsibilities in a manner consistent with the purpose of the Pacific Northwest Electric Power Planning and Conservation Act of 1980 and other applicable laws, to provide equitable treatment for fish and wildlife. Non-Federal project operators, water and land managers, fish and wildlife managers and resource users, whose activities impact the salmon in their rearing and ocean areas, can only be encouraged to implement program measures.

Further, the Council and other regional entities need additional scientific data upon which to formulate concrete recovery measures. Obtaining sound scientific data on salmon survival in this very complex ecosystem is extraordinarily difficult, as indicated in the environmental impact statements prepared for 1992 and 1993 hydrosystem operations under the ESA. The Northwest region would be well served by additional scientific information to address habitat, harvest and hatchery practices. This would provide a comprehensive framework and a reasonable basis for weighing the benefits to salmon of costly and dramatic changes.

The Council's fish and wildlife program is considered by the Federal agencies as part of their responsibilities under the Power Act. Since the Snake River salmon has been listed as an endangered species under the Endangered Species Act, the Federal agencies must also meet the requirements of that Act and consider the Council's program in the context of that Act. To that end, the Corps, the Bonneville Power Administration and the Bureau of Reclamation prepared EISs to address actions in 1992 and 1993 and beyond related to operations of the hydrosystem to meet ESA requirements. The agencies also entered into an extensive ESA consultation process with the National Marine Fisheries Service. While Federal actions designed to assist in the recovery of the listed species should also help other non-listed salmon species (but not necessarily resident fish species or wildlife), the fact remains that the dynamic ESA consultation and recovery planning process is guiding Federal actions with respect to the listed salmon species. Likewise, ongoing litigation related to the ESA

has the potential to stipulate actions outside the Council's planning framework. This means that agencies' implementation of the Council's plan will be carried out with due recognition being given to the agencies responsibilities under the ESA.

Timeliness of Federal Agency Implementation

Your second question asks if implementation of the Strategy for Salmon is on track for timely completion and whether the Federal agencies are coordinating their activities with each other and with the Council to achieve timely implementation. The Council's fish and wildlife program has set out a number of planning, design, construction and operations measures for Corps implementation. The Corps has worked closely with the Council and the other Federal agencies to address those measures. For example, the Council has called upon the Corps to continue construction of juvenile fish bypass and transportation facilities at Lower Granite, Little Goose, Lower Monumental and Ice Harbor on the Snake River, and McNary and The Dalles on the Columbia River. This includes the design, construction and installation of new state-of-the-art fish screens at key projects to divert most juvenile fish away from the turbines. This has been an engineering challenge. However, a newly designed screen concept has been successfully built and tested. We are now scheduled to have the new screens installed and other improvements made at Lower Granite, Little Goose and McNary Dam bypass facilities by 1996. New juvenile fish bypass and collection facilities at Lower Monumental Dam became fully operational in April 1993. New bypass facilities are scheduled to be completed at Ice Harbor Dam by 1996, and at The Dalles by 1998. The Council's plan has also called upon the Corps to transport juvenile fish, to carry out fish passage research, and to improve adult salmon passage conditions. In all cases we are fully implementing those measures. More recently, we are conducting the Snake River drawdown planning and testing as called for in the Council's recent amendments. This complex effort is being carried out jointly with the National Marine Fisheries Service and is being coordinated with other Federal agencies, the states, Indian tribes and regional interests. The effort will require a longer period of time than originally envisioned in the Council's program in order to accommodate the extensive environmental processes, engineering considerations, and biological studies and analyses. We are working closely with the Council and its Drawdown Committee to ensure a full understanding of schedules and activities as we implement this measure.

Changes in Water Management

In response to your question on what can be done to facilitate water conservation and other changes in regional water management to provide increased flows for power production and salmon recovery, the Corps of Engineers, the Bonneville Power Administration and the Bureau of Reclamation are currently

undertaking a joint Columbia River System Operation Review (SOR). The SOR is examining a number of options for operating the Federal facilities in the Columbia River Basin and providing power to the region with the goal of developing a System Operating Strategy to meet regional water uses.

In the Snake River system, the lack of water storage limits supplemental flow capability and often results in power production and salmon measures competing for the same limited available water resource. To increase the available water for both, additional storage would be necessary.

The System Configuration Study is looking at, among other alternatives, increased storage capacity in the Snake River Basin to provide for increased flows in the basin. Another potential action is to further reduce flood control at existing storage projects. The Corps carried out a study to examine flood control "rule curves" as called for in the Council's fish and wildlife plan. As a result, extensive changes were made in the criteria to make more water available for fish. Further flood control flexibility was gained as a result of Endangered Species Act consultation with the National Marine Fisheries Service. The SOR analyses consider hydro-system flow augmentation scenarios which could further modify system flood control. The evaluation is addressing the flood risk, economic considerations and other factors associated with the strategy. Again I want to emphasize the need for additional scientific information in this area. Currently, we do not know with any certainty how much salmon survival will be improved with increased flows.

Institutional Arrangements

We are pleased that you raise the series of questions related to institutional arrangements for salmon recovery implementation. Several of them are in fact the very questions the Corps, the Bonneville Power Administration and the Bureau of Reclamation have identified and are exploring in the Columbia River System Operation Review.

Besides the System Operating Strategy I already mentioned, the SOR is considering and evaluating alternatives in three other areas: the Pacific Northwest Coordination Agreement; Canadian Entitlement Allocation Agreements; and, what we term the Columbia River Regional Forum. The "Forum" is intended to be a mechanism to integrate multiple use requirements into Federal decisions on the operation of the Federal dams in the Columbia River system. It would be employed in periodic review and updating of the System Operating Strategy which, in turn, is intended to establish balanced river operations to meet all system uses, including anadromous fish.

A technical appendix to the Draft Environmental Impact Statement for the SOR is being prepared for assessment of various

alternatives for the Forum. As part of the regional review process, the appendix will be coordinated along with the Draft EIS next spring. On behalf of the three SOR agencies, we are providing for the record a copy of the draft preliminary technical appendix. It provides background on the Forum concept and on how operation decisions are currently made, and it provides an initial analysis of the alternatives under review.

In developing the Forum concept, SOR teams have worked with various regional interests to identify objectives, alternatives, and evaluation criteria. Two key elements have surfaced that define possible Forum alternatives -- "control", or who makes decisions on river operations, and "sunshine", or the public visibility of the decision process. These two elements have been combined to identify a broad range of options for the Forum. The following options are being evaluated:

- Forum 1: SOR agencies (Corps of Engineers, Bonneville Power Administration, Reclamation of Reclamation) retain decision making and conduct an enhanced public involvement process.
- Forum 2: SOR agencies retain decision making and receive operating recommendations from an existing entity (e.g. Northwest Power Planning Council) which conducts the public involvement process.
- Forum 3: SOR agencies retain decision making and receive operating recommendations from a new entity comprised of regional representatives and which conducts the public involvement process.
- Forum 4: Decision making shared among Federal agencies with jurisdiction, (eg. SOR agencies, NMFS, and USFWS) and staffs conduct appropriate public involvement process, analysis, and related procedures.
- Forum 5: Decision making by a new entity comprised of regional representatives. New entity conducts appropriate public involvement process, analysis, and related procedures.
- Forum 6: Decision making by one operating agency (e.g. Corps, Bureau of Reclamation) and that agency conducts enhanced public involvement process.
- Forum 7: Decision making by another Federal agency (e.g. NMFS, US Fish and Wildlife Service (USFWS)) and that agency conducts appropriate public involvement process, analysis and related procedures.

In view of the initiatives under SOR to develop, evaluate, and obtain public views on the four sets of alternatives, it is premature to offer specific comments or positions on the series of institution-related questions in your letter. Recognizing that we have not yet completed the public review and do not want to prejudice the outcome of this coordination, I offer the following comments:

We believe there is potential for improving public involvement in planning hydrosystem operation. Each of the Forum alternatives assumes changes and improvements to existing procedures will be made. An important consideration in additional involvement actions is how existing Federal and regional processes can be consolidated and perhaps better coordinated. This consideration is one of the evaluation criteria in the Forum evaluation.

With regard to the Pacific Northwest Coordination Agreement (PNCA), that agreement does not constrain salmon recovery measures associated with system operation. In fact, the agreement provides for nonpower uses as determined by the reservoir owner/operator. Nonpower requirements are determined during the operating planning process and incorporated in the operating plan. Adjustments for project and system needs such as anadromous fish can be made in "real time" as have been occurring as a result of Endangered Species Act consultations (1991/92 and 1992/93 operating years). The focus should continue to be on determining the best long-term operating strategy which can provide the basis for PNCA operating plans.

Mandating Recovery Actions

The final concept mentioned in your questions, that of creating a new entity or designating an existing agency with authority to mandate salmon recovery actions, is of current interest. The impetus for such a concept presumably is that it would permit more orderly and expedient decision-making. At this point, the recovery plan being developed by National Marine Fisheries Service is a comprehensive plan to address the complex issues and permit further analysis of the effects on Federal, state and tribal interests and authorities and upon others who depend on the Columbia River for recreation, navigation, flood control, fish and wildlife resources and power production.

It is not clear how some other entity or process would work. What is clear is the challenge to be faced. There are a number of Columbia River Basin water and land-uses and harvest matters which are administered by many Federal, state and tribal entities. In addition, the Canadians, under U.S.-Canada treaties, have an interest as do the many fishery management councils representing states outside the Northwest. Any entity mandating salmon recovery actions also would have to prioritize

and mandate other non-salmon basin water and land-uses. For example, over thirty Federal, state, tribal and other water-use interests were represented at the regional Salmon Summit. Another example, the Power Council's Directory of Organizations contains approximately 150 organizations interested in the Power Plan and the fish and wildlife program. All of these interests would have authorities and programs impacted. Land-use interests represent yet another block that would be affected. In summary, it is not clear whether any one entity, without possessing total control of all basin resource actions, could implement salmon recovery actions while accommodating a sustainable regional economy and ensuring preservation or restoration of the biological integrity of the Columbia River Basin ecosystem.

III. CONCLUSION

I want to take this opportunity to say that the Corps staff works hard and with dedication to carry out the Council's measures and meet the requirements of the ESA.

Again, I appreciate your time and attention and the opportunity to add my voice to the regional call for continued cooperation and progress in efforts to preserve and restore Columbia and Snake River salmon stocks.

TECHNICAL APPENDIX

COLUMBIA RIVER REGIONAL FORUM

Final Draft
September 15, 1993

**THIS IS A PRELIMINARY DOCUMENT THAT IS
SUBJECT TO FURTHER SOR AGENCY REVIEW**

SYSTEM OPERATION REVIEW

[INSIDE COVER]

The lead agencies have attempted throughout the SOR to keep the public informed about and involved in the process. Fourteen public scoping meetings were held in 1990. A series of public round tables were conducted in November 1991 to provide an update on the status of SOR studies. The lead agencies went back to most of those communities in 1992 with ten initial operating strategies developed from the screening process. From those meetings and other consultation, several SOS alternatives (with options) were developed and subjected to full-scale analysis. The Draft EIS and appendices document the methodologies and results for the impact analysis of the proposed actions. The agencies will again provide opportunities for the public to comment on the Draft EIS.

Regular newsletters on the progress of the SOR have been issued. Since 1990, ____ issues of *Streamline* have been sent to individuals, agencies, organizations, and tribes in the region on a mailing list of over 5,000. Several major publications explaining various aspects of the study have also been prepared and mailed to those on the mailing list. Those include:

The Columbia River: A System Under Stress
The Columbia River System: The Inside Story
Screening Analysis: A Summary Screening Analysis, Volumes 1 and 2
Power System Coordination: A Guide to the Pacific Northwest Coordination Agreement
Modeling the System: How Computers are Used in Columbia River Planning

Copies of these documents, the Draft EIS, and other appendices can be obtained from any of the lead agencies, or from libraries in your area.

[Note: Authors of the PNCA, CEAA, and Forum appendices will modify this preface as necessary, primarily by substituting the appropriate set of alternatives for the SOS alternatives.]

[Add list of co-lead agencies and their mailing addresses for SOR materials.]

September 15, 1993

PREFACE
SETTING THE STAGE FOR THE SYSTEM OPERATION REVIEW

What is the SOR and Why is it Being Conducted?

The Columbia River System is a vast and complex combination of Federal and non-Federal facilities upon which Northwest residents and visitors have become dependent for power production, irrigation, navigation, flood control, recreation, fish and wildlife habitat, and municipal and industrial water supplies. Each of these and other river uses compete for limited water resources in the Columbia River Basin. To date, responsibility for managing these river uses has been shared by a number of Federal, state, and local agencies. Operation of the Federal Columbia River System is the responsibility of the Bureau of Reclamation (Reclamation), U.S. Army Corps of Engineers (Corps) and Bonneville Power Administration (BPA). The System Operation Review (SOR) is a study and environmental compliance process being used by the three Federal agencies to analyze future operations of the system and river use issues. The goal of the SOR is to achieve a coordinated river system operation that better meets the needs of all river users. The SOR began in early 1990, prior to the filing of petitions for endangered status for several salmon species.

The comprehensive review of Columbia River operations encompassed by the SOR was prompted by the need for Federal decisions to (1) develop a coordinated system operating strategy (SOS) for managing the multiple uses of the system into the 21st century, (2) provide interested parties with a continuing long-term role in system planning, (3) renegotiate and renew the Pacific Northwest Coordination Agreement (a contractual arrangement among the region's major hydroelectric-generating utilities and affected Federal agencies to provide for coordinated power generation on the Columbia River System), and (4) renew or develop new Canadian Entitlement Allocation Agreements (contracts that divide Canada's share of Columbia River Treaty power benefits and obligations among three participating public utility districts and BPA). The review includes the environmental analysis required by the National Environmental Policy Act (NEPA). While this technical appendix addresses only the effects of alternative SOSs for managing the Columbia River System for one river use or functional analysis area, the environmental impact statement (EIS) itself and some of the other appendices present analyses of the alternative approaches to the other three decisions considered as part of the SOR. [Note: This sentence will need to be revised for non-resource appendices]

Who is Conducting the SOR?

The SOR is a joint project of Reclamation, the Corps, and BPA—the three Federal agencies that share responsibility and legal authority for managing the Columbia River System. The National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (FWS), U.S. Forest Service (FS), and National Park Service (NPS), as agencies with both

jurisdiction and expertise with regard to some aspect of the SOR, are cooperating agencies contributing analysis, information, and recommendations where appropriate.

How is the SOR Being Conducted?

A three-stage process—scoping, screening, and full-scale analysis—was developed to address the many issues relevant to the SOR. At the core of the analysis process are 10 work groups comprised of members of the lead and cooperating agencies, state and local government agencies, representatives of Indian tribes, and members of the public. Each of these work groups had a single river use (resource) to consider. Several other work groups were subsequently formed to provide projectwide functions, such as economic analysis. These resource work groups could choose to develop (1) an alternative for project and system operations that would provide the greatest benefit to its river use, and (2) one or more alternatives that, while not ideal, would provide an acceptable environment for its river use. Additional alternatives came from scoping for the SOR and from other institutional sources within the region. A total of 90 system operation alternatives were studied in the initial analysis. Preliminary analysis and review ultimately eliminated many of these alternatives from further consideration. The entire process started with scoping, and moved through screening and full-scale analysis as briefly described below.

Scoping/Pilot Study—Following public meetings in 14 cities around the region, and coordination with local, state, and Federal agencies and Indian tribes, the lead agencies established the geographic and jurisdictional scope of the study and defined the issues that would drive the EIS. The geographic area for the study is the Columbia River Basin (Figure P-1). The jurisdictional scope of the SOR encompasses the 14 Federal projects on the Columbia and lower Snake rivers that are operated by the Corps and Reclamation and coordinated for hydropower under the PNCA. BPA markets the power produced at these facilities. A pilot study examining three alternatives in four resource areas was completed to test the proposed analytical method.

Screening—Work groups, involving regional experts and Federal agency staff, were created for 10 resource areas and several support functions. The work groups then developed computer screening models and applied them to the 90 alternatives that were identified during this phase. They compared the impacts to a baseline operating year—1992—and ranked each alternative according to its impact on their resource or river use. Results were reviewed with the public in a series of regional meetings in September 1992.

Full-scale Analysis—From the results of screening and public comment, the alternatives were sorted, categorized, and blended into six basic operating strategies. These alternative strategies, which have multiple component options, were then subjected to detailed impact analysis. The results and tradeoffs for each resource area are contained in a technical appendix and summarized in the draft EIS.

What SOS Alternatives Are Considered in the Technical Appendices?

Six operating strategies for the coordinated Columbia River System were analyzed for the EIS. Briefly, they are:

SOS 1—Pre-ESA Operation reflecting conditions before changes in response to the listing of three Snake River salmon stocks as threatened or endangered under the Endangered Species Act.

SOS 2—Current Operations incorporating interim flow improvement measures in response to ESA listings of Snake River salmon. This represents the no-action alternative.

SOS 3—Flow Augmentation designed to provide more water to move juvenile fish more rapidly down the river by setting flow targets for each month.

SOS 4—Stable Storage Project Operation to benefit recreation, resident fish, wildlife, and anadromous fish, while minimizing the impacts to power and flood control. The goal is to minimize storage reservoir fluctuations while moving closer to natural flow conditions.

SOS 5—Natural River Operation to increase river velocity by drawing down the four lower Snake projects to near original riverbed levels for either 2 months or 4 1/2 months during juvenile fish migration.

SOS 6—Fixed Drawdown to draw down the four lower Snake River projects, or Lower Granite only, to fixed elevations below minimum operating pool for either 2 months or 4 1/2 months.

SOS 7—Federal Resource Agencies Operations establish various flow targets and draft upstream storage projects as necessary to meet the targets which provide improved in-river migration of anadromous fish.

What is this Technical Appendix and the EIS?

This technical appendix is one of 19 [number and titles subject to revision] prepared for the SOR. They are:

Anadromous Fish	Economics and Sociology
Cultural Resources	Soils, Geology and Groundwater
Flood Control	River Operation Simulation
Power	Air Quality
Irrigation/Municipal and Industrial	Land Use
Water Supply	Screening Analysis

Navigation
 Recreation
 Resident Fish
 Wildlife

PNCA Alternatives
 Columbia River Regional Forum
 CEAA Alternatives
 Water Quality

Each resource appendix presents the detailed description of a work group's analysis of alternatives, from the scoping process through to full-scale analysis. Several appendices address specific SOR functions (e.g., River Operation Simulation), rather than individual resources, or the institutional alternatives (e.g., PNCA) being considered within the SOR. The technical appendices provided the basis for developing and analyzing alternative System Operating Strategies in the EIS. The EIS brings together in summary fashion a vast wealth of information contained in the appendices for decision makers and the general public.

There are many interrelationships among the different resources and river uses, and many of the appendices provide supporting data for analyses presented in other appendices. This _____ appendix relies on supporting data contained in Appendices _____. For complete coverage of all aspects of (insert resource or river use subject), readers may wish to review all (insert relevant number of appendices) appendices in concert.

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Association of Bay Area Governments
 Chesapeake Bay Program
 Gulf of Mexico Project
 Puget Sound Water Quality Authority
 Ohio River Commission

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CHAPTER 1 NEED, PURPOSE, AND SCOPE

The System Operation Review (SOR) is currently developing a System Operating Strategy that will guide the physical operations of the Columbia River system. The SOR is also addressing the institutional arrangements that must be in place to make needed changes to the System Operating Strategy (SOS) in the future, or make interpretations of the strategy in the light of changing water conditions or river needs. For convenience, this future institutional arrangement is referred to as "The Columbia River Regional Forum," or simply "the Forum," even though the nature of this institution is still to be determined.

1.1 INTRODUCTION

The System Operation Review will address future decisionmaking about river system operations in the following ways: (1) by providing a technical baseline so that future evaluations of river operations will not have to start at the same level as did the SOR; (2) by providing a mechanism for evaluating alternative operational strategies in a reasonable time frame, and (3) by providing the public an opportunity to participate in both the analysis of alternatives and the decisionmaking process. The mechanism for evaluating future operating strategies, and providing the public the opportunity for participation in analysis and decisionmaking will be "the Forum."

This appendix and the Draft Environmental Impact Statement (DEIS) identify the Forum as an administrative process that will not result in impacts to the environment and will not require analysis in a NEPA context. Nevertheless, because of the relationship to the other SOR actions, the SOR lead agencies have prepared this

Technical Appendix to provide opportunities for review and comment on the Forum alternatives.

As part of developing the Forum alternatives, the SOR lead agencies have considered mechanisms for public involvement in decisionmaking related to issues of water quality and water development in other areas of the country. Although none relate specifically to river operation planning, they do provide an insight into different processes which elicit public input into agency decisions.

The recognition that a Forum was needed in the future came only after the agencies began to consider other operations problems. Initially, the SOR lead agencies were faced with the expiration of two important power-related contracts – the Canadian Entitlement Allocation Agreement and the Pacific Northwest Coordination Agreement – that required renewal and/or renegotiation. The utilities who are parties to these two agreements see them as directly linked. However, before these contracts could be acted upon, the agencies recognized a need to consider comprehensively the Columbia River system and its operation, evaluate various system operation alternatives, and develop a System Operating Strategy. The SOR was created to accomplish this task.

The SOR Team then recognized that there was a final piece in the puzzle that needed to be addressed. Since conditions, knowledge or requirements will change in the future, there is a need for a method of periodically reviewing and updating the System Operating Strategy without having to repeat the intensive analysis that is currently underway. The Forum was identified to fill that need and forms a pivotal part of the overall SOR approach. It completes the review of hydro system and allows for efficient implementation of river operations in the future.

The agencies are presenting this evaluation of the Forum concept in combination with and at the same time as the other major SOR decisions so that the region can consider it as part of the SOR package. The DEIS will display the agencies' evaluation of the alternatives and will hopefully stimulate significant public review. Once that review is completed, the SOR lead agencies may choose to make a decision on the Forum prior to making the other SOR decisions. An early decision is possible because formal NEPA review of the Forum is not required, as noted above. The Forum could be used to assist in making the other key SOR decisions, particularly the selection of a long-term System Operating Strategy. No commitment is being made now, but the possibility for this outcome exists and needs to be recognized. Comments on this approach are welcomed.

1.2 ROLES AND AUTHORITIES OF THE SOR LEAD AGENCIES

The SOR lead agencies -- the Bonneville Power Administration (BPA), the U.S. Army Corps of Engineers (the Corps), and the U.S. Bureau of Reclamation (Reclamation) -- are, in effect, the "decision makers" on river operations. The Corps owns and operates 12 of the Federal dams. Reclamation owns and operates the other two. BPA acts as the marketing arm of the system, building and operating a regional transmission system, and selling the power from the Federal dams to more than 150 utilities.

Historically, each of these agencies had a primary mandate. BPA's primary historic concern was power marketing and delivery. The Corps' two historic concerns were flood control and navigation. Reclamation's primary mandate was water development, primarily for irrigated agriculture, but also for power, flood control, and recreation. Over time, however, each of these agencies has gained added responsibilities for other uses of the river: fisheries, wildlife, recreation, cultural resources, and all the other uses currently being evaluated as part of the SOR process. The result has been conflicts

between the historic mandates and newer responsibilities, and occasionally, conflicts between the three agencies over how to interpret and prioritize the different uses of the river.

Although the SOR lead agencies are the primary decisions makers, other agencies and entities also play a role. A number of Indian tribes along the river have treaties with the Federal government that establish their rights to fisheries in the river. In the past few years the National Marine Fisheries Service (NMFS) has played a stronger role in decisions about river operations as part of its responsibilities to protect threatened or endangered anadromous fish species in the Columbia River system, and the U.S. Fish and Wildlife Service will soon assume a comparable role protecting other species. The Northwest Power Planning Council also prepares regional plans for power, and fish and wildlife, that influence river operations. Other Federal and state agencies play some role in decisionmaking about river operations.

The SOR lead agencies are also not the only entities who generate hydropower on the Columbia River system. Several other power generating utilities make decisions that affect river operations. In 1964, the SOR lead agencies and 14 (later to become 15) power generating utilities entered into an agreement called the Pacific Northwest Coordination Agreement (PNCA). The purpose of this agreement is to jointly plan and coordinate the power operation of the system as if all the facilities belonged to a single owner. Operating the system in this manner produces a greater amount of power from the available water. This agreement expires in 2003, and its renewal or replacement is also being evaluated as part of the SOR. More information about the PNCA is in Chapter 2, Background. A complete analysis of PNCA alternatives is contained the PNCA Technical Appendix __.

The PNCA provides something like the forum discussed in this document. Parties to the agreement can sit down at the same table and optimize power generation given specific water conditions and nonpower requirements at the various hydroelectric projects. However, no forum exists at which entities representing all the other uses of the river – fisheries, flood control, navigation, irrigation, recreation, wildlife, cultural resources, etc. – sit down at the same table with the power users and make joint decisions about how to operate the river.

In effect, the SOR lead agencies act on behalf of all the nonpower uses for Federal projects. The Corps and Reclamation, as owners and operators of the Federal dams develop operating requirements on behalf of the nonpower uses at their projects. BPA participates with the Corps and Reclamation in determining these requirements. The operators can unilaterally determine operations on the Federal system for nonpower uses; they cannot unilaterally determine the operation at non-Federal facilities.

The SOR lead agencies effectively allocate the water and flows for protection of nonpower uses first, then the remaining resources are planned for under the provisions of the PNCA, which is collaborative with other non-Federal utilities and optimizes power generation and reliability. Of course, when the SOR lead agencies act on behalf of the nonpower uses they are themselves constrained by their own mandates, the authorizing legislation for each Federal facility, treaty obligations with Indian Tribes and with Canada, and various obligations under Federal laws and regulations.

1.3 THE NEED FOR A RIVER OPERATIONS FORUM

The need for the Columbia River Regional Forum is to find a better way to integrate multiple-use requirements into Federal decisions on the operation of Federal dams in the Columbia River system.

The current situation is one where the resources of the Columbia River system are unable to meet all the desired uses of the river system. This sets up intense competition between groups and interests representing the uses of the system. The result is a decisionmaking process that can at times be bitterly contested. Decisions are often challenged in the Courts or appeals are made through other processes. Decisionmaking is extremely complex, and although the competing concerns ultimately funnel through the SOR lead agencies, the way decisions are reached is not always visible or understood by the interests or affected parties.

Because the PNCA is a well defined institutional arrangement and affects river operations, some interests perceive the PNCA as managing all river operations, or at least making decisions that go far beyond power generation and affecting other uses of the river system. In the absence of an equivalent mechanism for all users to sit down at the table, the PNCA looks like an exclusive club in which the "real" decisions get made, although this is not the case.

From the perspective of the power generators, the problem is that the decisionmaking process does not result in predictable decisions, and is unduly complex. Decisions about new power sources often take five to ten years of lead-time. If decisions about river operations can dramatically alter the amount of power generated by the river system from year to year, utility planners find themselves in a quandary about how to

plan for meeting the future power needs. Historically, hydropower has been the cheapest form of power, so utilities are reluctant to acquire other sources of power to replace hydropower unless they know for certain that the hydropower resources will not be available in the future.

The power generators also share a problem with other river users -- the decisionmaking process has become so complex that participating in all the various aspects of the decisionmaking process can be very time-consuming and expensive. All the groups see themselves as benefiting from a streamlined system -- although not if that streamlined system results in decisions that negatively affect their interest.

This last comment suggests that the ultimate issue is *how the benefits of the river are allocated*. As the pressures on the river system continue to grow, this struggle for control of these valuable resources will become even more intense. Without an effective forum that is accepted as legitimate by all the parties as the place where these competing needs can be addressed and resolved, decisionmaking is likely to become even more complex and adversarial. The costs of participating in decisions will continue to increase. There will be continued unpredictability. The continuing conflict may result in fewer benefits from the Columbia River system for the region.

1.4 PURPOSE AND OBJECTIVES

1.4.1 Purpose

The fundamental purpose of the Forum is to have a credible and legitimate mechanism for making future decisions about the System Operating Strategy and interpretations of that strategy. A successful Forum would provide:

- An open, visible, and responsive means to enable the best possible decisions regarding project operations.
- Ready access to the planning process.
- Flexibility to respond to changing needs.
- Procedures that are clear and easy to understand.
- A means to develop consensus on methods for evaluating system operations.
- A means to resolve conflicts among all parties.
- A way to integrate feedback from single-resource management mechanisms (such as the Pacific Northwest Coordination Agreement and the Coordinated Plan of Operations), so these can operate effectively within a set of balanced system priorities (a Strategy).
- A means to improve the efficiency of water and energy use and to optimize management of the system for all of its purposes.

1.4.2 Objectives

The attributes discussed above form the basis for several objectives established by the SOR lead agencies for the Forum:

- **PARTICIPATION:** Since the ultimate issue is how decisions are made, and which uses are affected, all parties must have access to the decisionmaking process if the Forum has any hope of legitimacy. To be credible, the Forum must ensure that:
 - All parties are "at the table", whatever the table looks like.
 - The costs of participating in the decision are not so high that some groups (uses) are placed at a significant disadvantage.
 - The technical analysis upon which decisions are based is not biased in favor of some of the uses, and is viewed as objective and adequate by all the major parties.
- **VISIBILITY:** The Forum must ensure that decisions are arrived at in a way that provides visibility to how and why the decision was made. Decisions must be made in the "sunshine glare" of a full public process.
- **INTERACTION:** The Forum must provide a setting in which the parties talk to each other, not just to the SOR lead agencies. This kind of interaction would be helpful in building a consensus.
- **TIMELINESS:** The Forum must be able to make decisions in a timely manner to meet the real-time demands of river operations.

- **ACCOUNTABILITY:** The Forum must provide accountability, so that it is clear who makes the decision, and who bears responsibility for the consequences of decisions.

1.5 SCOPE

The scope of the Forum defines: (1) which Federal projects in the system are included, (2) the timing of the decisions being made, and, (3) the uses of the river that will be taken into account in decisions. The scope is as follows:

1.5.1 System

The geographic reach is defined by the 14 Federal projects within the scope of the System Operation Review. These include the following lower, mid, and upper Columbia River and Snake River mainstem dams and reservoirs and the major upstream storage reservoirs:

Table 1: Federal Dams on the Columbia River System

Libby	Hungry Horse
Albeni Falls	Grand Coulee
Chief Joseph	Dworshak
Lower Granite	Little Goose
Lower Monumental	Ice Harbor
McNary	John Day
The Dalles	Bonneville

Decisions resulting from the Forum would involve operations of these projects and system operations as affected by operation of these projects. Expansion of the Forum scope to include other Federal projects in the Columbia River basin is a future possibility.

1.5.2 Timing of Decisions

The Forum would be structured to enable annual decisions about river operations in conjunction with river operations planning activities and to revise long-term operating strategies. The Forum may also establish a framework for decisions that must be made in a time frame shorter than an annual basis, such as seasonal real-time operations decisions.

1.5.3 Uses

Any activity or use directly affected by operations of the 14 Federal projects is appropriate for consideration in the Forum. Specifically, there are ten major uses of the system being addressed in the SOR evaluation: anadromous fish, cultural resources, flood control, irrigation, navigation, power, recreation, resident fish, water quality, and wildlife. Economic and social aspects would be considered as well, including impacts upon people who live near reservoirs.

CHAPTER 2 BACKGROUND

2.1 WHAT KIND OF DECISIONS ARE BEING MADE AND HOW ARE THEY MADE

2.1.1 Introduction

In order to understand how the Forum may facilitate future decisions, it is helpful to understand the different kinds of decisions that are being made and how these decisions are currently made. The decisions are summarized -- in simplified form -- below, along with a discussion of the current process the operating agencies use for resolving each.

Each Federal project within the scope of the SOR was constructed under specific Congressional authorizing legislation identifying the major intended uses for each project, as shown on the next page in Table 2. All of those projects were specifically authorized for hydropower production, most were authorized for navigation, and some were also authorized for flood control and irrigation. The seasonal abundance of water and the predictability of its use allows a project to support other uses as well, but only after its authorized purposes are met. General Congressional authorization allows for such uses as water quality, fish and wildlife, recreation, and municipal and industrial water supply.

While the authorizing legislation stipulated intended use, it seldom contained explicit provisions for operating the individual projects for their coordinated operation within

Table 2: Project Purposes of Federal Dams

Project	Power	Navi- gation	Flood Control	Irri- gation	Other Uses	Autho- rized	Authority	Document
Libby	√		√		F, R	1950	PL 81-516	HD 531
Hungry Horse	√		√	√	FWL, R	1944	PL 78-329	HR 6732
Albion Falls	√	√	√		R	1950	PL 81-516	SD 9
Grand Coulee	√		√	√	FWL, R	1935	PL 74-409	HR 3570
Chief Joseph	√				R, I, WQ	1946	PL 79-525	HD 693
Dworshak	√	√	√		F, R	1962	PL 87-874	HD 403
Lower Granite	√	√			F, R, I, WQ	1945	PL 79-14	HD 704
Little Goose	√	√			F, R, I, WQ	1945	PL 79-14	HD 704
Lower Monumental	√	√			F, R, I, WQ	1945	PL 79-14	HD 704
Ice Harbor	√	√			F, R, I, WQ	1945	PL 79-14	HD 704
McNary	√	√			F, R, I, WQ	1945	PL 79-14	HD 704
John Day	√	√	√		F, R, I, WQ	1950	PL 81-516	HD 531
The Dalles	√	√			F, R, I, WQ	1950	PL 81-516	HD 531
Bonneville	√	√			F, R, WQ	1935	1935 R&H Act	Sen. Com. Print, 73rd Cong, 2nd

Legend: F - Flood Control
R - Recreation
FWL - Fish & Wildlife
I - Irrigation
WQ - Water Quality

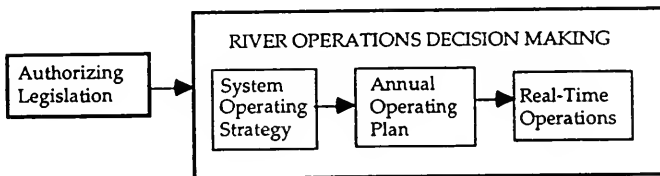
the total system. However, considerable information is normally provided in agency feasibility reports to the Congress which form the basis for the recommendation to authorize a particular project. Beyond those reports, the Corps and Reclamation are responsible for deciding how to operate their projects based on principles of multiple-use operation, their agency charters, operation experience, and public concerns. Overall operation plans are contained in project operation and water control manuals prepared for each project.

Since the Bureau and Corps have some flexibility in how they operate the projects, and there is increasing competition for the benefits of the projects, there is a need to define

more precisely how the projects will be operated in the future. The System Operating Strategy will define how the trade-offs between all the uses will be handled by defining the operation of each project within a relatively narrow band. The question that remains is how decisions are made within that band.

Within the guideline of the authorizing legislation and the physical capabilities of the fourteen dams, there are three levels of decisionmaking, ranging from very broad policy decisions to very specific, immediate kinds of decisions.

Figure 1 - LEVELS OF DECISIONMAKING



The Forum will potentially address all three levels of decisionmaking identified in Figure 1. The Forum could:

- 1) Be the mechanism for making revisions to the System Operating Strategy;
- 2) Be the vehicle for developing the Annual Operating Plan; and
- 3) Provide a mechanism by which the parties can review actual operations, or request changes in the annual operating plan in response to mid-year conditions.

2.1.2 System Operating Strategy

The first level of decisionmaking is to determine a System Operating Strategy. The strategy establishes a broad operating regime of storage elevations, outflows and their timing designed to balance the multiple uses of the river. There has yet to be a formal strategy published by the SOR lead agencies. The current operating strategy "exists" as a collection of multiple-use requirements for individual projects and several system objectives that are met through these project requirements. Examples of system objectives are power production, flood control and anadromous fish flows, irrigation, navigation. The SOS will be one of the major products of the System Operation Review. Once the SOS is in place, there would also have to be considerable operational planning between all the parties to ensure that the strategy can be implemented.

The SOS is currently being determined as part of the SOR. This is a five-year multi-million dollar study. One of the goals in establishing the Forum is to provide a mechanism for revising the strategy that won't require such an immense effort. The goal is that the SOR EIS will consider a broad enough range of alternatives that future revisions to the strategy will be covered by the SOR EIS, possibly with a new Record of Decision or a Supplemental EIS.

2.1.3 Annual Operating Plan

But even when there is an overall strategy, it must be interpreted in light of actual hydrologic conditions, such as the amount of storage in the reservoirs, the amount of snowpack, the water supply forecast, etc. Each year, a year in advance, annual operating plans are developed for power and nonpower uses. For example, power

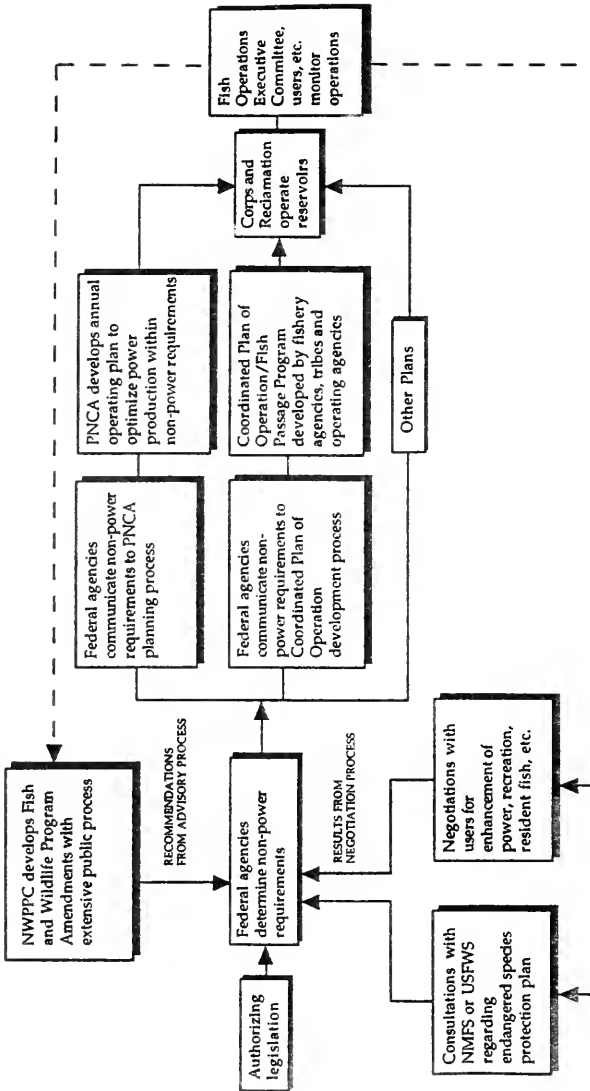
coordination planning and operation is done through the PNCA, and anadromous fish operations are planned through a Coordinated Plan of Operation (CPO).

Figure 2 describes the way decisions are currently made to reach an annual operating plan. In the present decisionmaking process, the SOR lead agencies act as the decision maker. As discussed earlier, each of the Federal facilities was authorized by Congress, and that authorizing legislation established some broad, general guidelines. The legislative mandates of the SOR lead agencies also established some requirements for flows and elevations necessary to meet needs and authorized purposes. Decisions also occur in response to advice provided by the Northwest Power Planning Council (Council), and discussions and consultations with the National Marine Fisheries Service (NMFS) and the various river users, as discussed below.

The Council consists of eight members, two from each Northwest state, appointed by the Governors of the states. One of the primary responsibilities of the Council is to develop a regional fish and wildlife program. The Council goes through an extensive public process as part of developing the plan. This plan is advisory to the SOR lead agencies.

Because some of the salmon species on the Columbia River are threatened or endangered, the SOR lead agencies must submit a plan to the National Marine Fisheries Service describing how these fish stocks will be protected and recover. This plan may require timing and size of flows for fisheries, and establishes major requirements for how the system will be operated.

Figure 2
COLUMBIA RIVER REGIONAL FORUM
EXISTING DECISION PROCESS



Discussions may also occur between the SOR lead agencies and any of the agencies or groups representing uses of the river. Each group may have proposals for how it would like to see the river operated to maximize its interests.

Based on all these discussions and negotiations, the Corps and Reclamation determine the nonpower requirements and communicate these to numerous entities affected by system generation requirements. The SOR lead agencies then work with the fisheries agencies and tribes to develop a Coordinated Plan of Operations (CPO) for management of the nonpower resources, and also work with the other PNCA entities to develop an annual plan for management of the power resources.

The Corps and Reclamation then operate the dams themselves. When decisions come up that require consultation, the SOR lead agencies consult with either the PNCA entities, the Fish Passage Center or other interested and affected parties.

2.1.4 Real-Time Operations

The actual operations take place in what is described as "real time," that is, decisions must be made in a few hours, days, or at most a few weeks. Operators regulate the system in an effort to satisfy all the power and nonpower purposes contained in the strategy and annual operating plan. Decisions may need to be made to respond to in-stream conditions for fish or navigation, or to take advantage of an opportunity to make a profitable power sale. Boating accidents, generator outages, short term climatic events, even the timing of recreational events can influence operational decisions.

As described above, "real-time" operations decisions are made in a short time, ranging from several hours to several days, or sometimes, several weeks. All of these decisions

are guided by annual operating plans and a body of agreements made between the various parties. Throughout the year, "users" of the river may request a specific operation. For example, an operation might be requested to take advantage of a profitable opportunity to sell power outside the Region, thereby reducing the cost of power to Regional power users; or fisheries agencies might request additional flows to aid with providing optimal conditions for fish runs. Additional flows may be needed to permit navigation, or even to get a barge off a sandbar. Flows may be reduced to assist finding victims of drowning accidents.

Once a request is made, the operators review the request to determine whether it is consistent with the annual operating plans, whether it could have impacts on other uses, and whether there would have to be any consultation with or between the affected parties. The operators know who the other parties are, and what their interests will be. If the interests of other parties could be affected, the operators usually contact them for a discussion of potential impacts prior to making decisions. For example, if there were issues related to impacts on fisheries, the operators would call the Fish Passage Center to discuss the request.

Because of the time urgency of real-time operations, the operators must have the authority to make the decisions. There may be questions to be resolved between the parties after the decisions are made, but the operators will do the best they can to consult with directly affected parties within the time constraints.

2.1.5 Monitoring

Impacts resulting from decisions are continually monitored by the SOR lead agencies and others. Most impacts are internal to the SOR lead agencies and between the SOR

agencies. The agencies also receive both formal and informal comments and suggestions on operations through letters, public meetings and consultations. For example, the Council has established an advisory group called the Fish Operations Executive Committee. The membership of this group consists of _____. The Fish Operations Executive Committee monitors the operation of the Columbia River system. Its recommendations feed into amendments to the Power Planning Council's Fish and Wildlife Program., influencing operations in future years. This advice is all considered in making future strategy, operating plan and real-time decisions.

2.2 RELATIONSHIP OF FORUM TO OPERATIONS

2.2.1 Introduction

The Forum could relate to each of the major stages of Federal operations, or be the arena or process in which to discuss changes to the SOS, the Annual Operating Plan and/or real-time operations.

2.2.2 System Operating Strategy

The SOS is intended to be a long-term strategy for Federal project operations. It should establish general policies on operations and define the limits in project operations. Some amount of operational flexibility should remain even after the strategy is applied to various Federal projects. Many people view the SOS as a set of nonpower requirements as this term is defined in the current PNCA. As such, the SOS would define project-specific, multiple-use requirements that must be met. These requirements are usually expressed as minimum or maximum flow requirements and minimum or maximum reservoir elevations. In combination, they form a band within

which actual real-time operations must fall. Different strategies provide different "band" widths, resulting in various amounts of flexibility. These requirements would likely persist long-term and would not be related to water conditions. The SOS would become the basis for the SOR lead agencies' submittal of nonpower requirements to the PNCA.

The Forum's primary activity would be focused on the SOS, specifically in reviewing the combination of long-term project-specific operating requirements that result in planned system operation over multiple years. The review process could occur as frequently as annually. Any changes resulting from the review would be reflected in the SOS and continue into the future until such time the Forum made further alterations or adjustments.

2.2.3 Annual Operating Plan

The annual operating plan translates the general terms of the System Operating Strategy into realistic plans given the water conditions on the river. It recognizes unique seasonal demands of river uses and is based on current system capabilities. It may result from discussions with interested regional parties, from experiences of the preceding year or from formal consultations required of the operators as part of the Endangered Species Act or other regulations. Actual operations would be limited within the flexibility afforded by the SOS.

The Forum may or may not directly affect the annual operating plan. To the extent that appropriate issues are raised and resolved within the Forum process and those operational changes do not go beyond what is allowed in the SOS, then such changes could be made. The Forum would be contributing directly to the development, and

more importantly, to the implementation of the annual operating plan. Issues or suggestions that exceed the SOS could be considered part of the general SOS review as mentioned above, but would not affect the planned operations for that year. The actual operation of the Federal system would remain with the present operators.

2.2.4 Real Time Operations

Real time operations are, by their very nature, reactive to specific conditions and needs. As such, the time required between the recognition of a problem to an action taken to correct the problem is quite short. Any process contemplated for the Forum would in most cases extend past the time when action is necessitated. Nevertheless, the operators have some flexibility, within a relatively narrow band, and there is always interest in whether the operators' decisions favored some uses over others. While the Forum would not participate in the real-time decision, it could evaluate the action taken and consider whether provisions for similar events should be included in either the SOS or future annual operating plans. The SOR lead agencies were given the responsibility to operate the Federal system and the Forum would not affect this responsibility.

2.3 RELATIONSHIP TO OTHER PROCESSES

Decisions about a Forum are linked to two other processes being considered as part of the System Operations Review: the consideration of alternatives to the Pacific Northwest Coordination Agreement, and renewal of the Canadian Entitlement Allocation Agreements. It is also linked to other processes ultimately affecting how operational planning and implementation is performed for the Columbia River system: the Northwest Power Planning Council's Power Plan and Fish and Wildlife Program, and Endangered Species Act recovery planning and consultation. The PNCA and

CEAA are evaluated in detail in other technical appendices as proposed actions in the SOR. A brief discussion of these processes is provided below. The other processes are not specifically a part of the SOR but relate directly to the selection of a SOS and affect operations covered by that SOS.

2.3.1 Pacific Northwest Coordination Agreement

As described earlier, the PNCA is an agreement between the SOR lead agencies and the other utilities which generate power from the operations of the Columbia River system. The purpose of the agreement is to coordinate the power planning of the Columbia River system as if it were owned and operated by a single owner. The net effect of the agreement is that more power is generated from the combined system than would be generated if each entity operated its own facilities in isolation from the others. This agreement was signed in 1964 and will expire in 2003.

The SOR is considering various potential forms of the PNCA for the future. Among the alternatives being considered are:

- No new PNCA (existing PNCA continues until 2003)
- A roll-over of the existing PNCA without modification
- Extension of the existing agreement with the addition of long-term operating procedures
- Various modified PNCAs

As discussed above, under Section 15 of the PNCA the Corps and Reclamation, as do all other utilities in the PNCA, have the authority to determine the requirements for nonpower uses before power requirements are established. Under the Forum, this is

not expected to change. The Forum would likely be used to determine the nonpower requirements for the Federal projects within the confines of the System Operation Strategy. PNCA does not dictate the design of the Forum, nor would the Forum dictate a particular structure or agreement for PNCA.

2.3.2 Canadian Entitlement Allocation Agreements

Under the Columbia River Treaty, Canada built three storage dams on the upper reaches of the Columbia River in British Columbia. The regulation of stream flows made possible by these projects enabled dams downstream in the U.S. to produce more dependable capacity and average annual usable energy, and also provided increased flood protection. The Treaty requires that the U.S. and Canada share the benefits of the extra power-producing capability equally.

Because Canada did not need additional power at the time of the Treaty, it sold its benefits, called the Canadian Entitlement, to a group of utilities in the Northwest for a period of 30 years from the completion date of each of the three Canadian projects. The Canadian Entitlement is actually generated at the 11 U.S. projects downstream of the Canadian border. Five of these projects are owned by public utility districts (PUDs) – Chelan, Douglas, and Grant; six are owned and operated by the Federal government. The Canadian Entitlement Allocation Agreements determine the amount of power each PUD projects is entitled to generate of the total. BPA, as the representative of the U.S. government, and the PUDs are signatories to the agreements.

The agreements begin to terminate in 1998, and they expire completely by 2003. Canada has indicated they do not wish to resell the Canadian Entitlement to U.S. utilities. The return of Canada's share of power begins in 1998. New Canadian Entitlement

Allocation Agreements are needed to determine the return obligation for each PUD. Current estimates of the total Entitlement during the return are 500 to 600 average megawatts of energy and 1,200 to 1,400 megawatts of capacity.

The System Operation Review will evaluate alternative ways of allocating the obligation between the SOR lead agencies and non-Federal parties, and assess the environmental impacts of the alternatives. The alternatives under consideration include:

- 55 Percent Federal/45 Percent Non-Federal Allocation
- 70 Percent Federal/30 Percent Non-Federal Allocation
- 100 Percent Federal/0 Percent Non-Federal Allocation

While the return of the Canadian Entitlement could reduce the available resources of the Columbia River system, or require replacement in some other manner (such as building new resources), it would not materially affect the operation of the river system. As a result, conclusions on the Canadian Entitlement Allocation Agreements will not affect the decision on the Forum, nor is the shape of the Forum expected to affect the allocation agreements.

2.3.3 Northwest Power Planning Council Power Plan and Fish and Wildlife Program

The Northwest Power Planning Council (NPPC), made up of representatives of the States of Idaho, Montana, Oregon, and Washington, was entrusted under the Northwest Power Act of 1980 to 1) develop a conservation and electric power plan to ensure an adequate, efficient, economical, and reliable power supply for the Pacific Northwest; 2) prepare a program to protect, mitigate, and enhance fish and wildlife, including related spawning grounds and habitat, affected by the development and operation of any

hydroelectric project on the Columbia River and its tributaries; and 3) involve the public in these activities.

In 1982, the NPPC issued its first Fish and Wildlife Program which addressed salmon and steelhead production, safe passage, and harvest management. Although the Act requires review at least every 5 years, amendments and revisions have been made to the program almost annually. In 1991, responding to the potential for endangered species listings of Columbia and Snake River salmon, the NPPC began another series of amendments to its Fish and Wildlife Program centering on a salmon rebuilding program. The amendment process included four phases focusing on different aspects of salmon survival; production, habitat improvement, harvest, and fish passage improvements at Federal dams.

Following the Salmon Summit in 1991, the governors of the four Northwest states requested the NPPC to take the lead in developing regionally acceptable recovery actions. River management agencies have coordinated closely with the NPPC in developing those Fish and Wildlife Program amendments.

The Council has also prepared the "Northwest Conservation and Electric Power Plan" in 1983 and in 1986, and a supplement in 1989. The council is currently preparing to review and update the power plan. The Council's plan does not create any new energy, rather, the plan must be implemented by BPA, other Federal, state and local agencies, utilities, businesses and the public.

2.3.4 Endangered Species Act Recovery Planning and Consultation

The Endangered Species Act of 1973 as amended requires that actions of Federal agencies not jeopardize the existence of threatened or endangered species or destroy or adversely impact official habitats of these species. Several species of Salmon in the Columbia River system are threatened or endangered. Because of this, the relevant habitat protection agency -- the National Marine Fisheries Service (NMFS) -- is now responsible for a recovery plan, developed in consultation with the dam's operators, to protect the existing population of the species and bring about recovery, if possible.

These plans could have a considerable impact upon the operations of the Federal dams. In fact, the SOR lead agencies intend that the SOR will provide an analysis and evaluation of the impacts of any operational aspects of the Recovery Plans for Chinook and Snake River sockeye if those operational aspects are known prior to printing and distribution of the DEIS. In the future, the Forum might consider those aspects of any recovery plan(s) for listed or proposed species which affect or are affected by Columbia River operations.

Since the Endangered Species Act does not provide for Section 7 consultation with other than Federal agencies, the SOR lead agencies would most likely consult on system operational features with the National Marine Fisheries Service and/or the Fish and Wildlife Service on behalf of the Forum participants. Forum participants may provide review of any necessary biological assessments and biological opinions.

2.3.5 Federal Advisory Committee Act

Several of the Forum alternatives could be classified as Federal advisory committees coming under the requirements of the Federal Advisory Committee Act (FACA) of 1972. A regular advisory group consisting of non-Federal members would be exempted from FACA only if it conformed with the following language:

"Exempted:

"Any meeting initiated by a Federal official(s) with more than one individual for the purpose of obtaining the advice of individual attendees and not for the purpose of utilizing the group to obtain consensus advice or recommendations. However, agencies should be aware that such a group would be covered by the Act when an agency accepts the group's deliberations as a source of consensus advice or recommendations."

In other words, if members of the advisory groups express individual viewpoints but there is no effort to achieve a group recommendation, then the advisory group could be exempt from FACA. Several of the Forum alternatives talk about "decisions" made by a group consisting of non-Federal members. This would appear to place such groups within the purview of the FACA. If such a group were created by Congressional authorization, Congress could, of course, specifically exempt the group from FACA.

On February 10, 1993, President Clinton issued Executive Order 12838, Termination and Limitation of Federal Advisory Committees, which states that executive departments are to eliminate the number of FACA committees by one-third. The Executive Order also states:

"Section 5. Effective immediately, executive departments and agencies shall not create or sponsor a new advisory committee subject to FACA unless the committee is required by statute or the agency head (a) finds that compelling considerations necessitates creation of such a committee, and (b) receives the approval of the Director of the Office of Management and Budget. Such approval shall be granted only sparingly and only if compelled by considerations of national security, health or safety, or similar national interests. These requirements shall apply in addition to the notice and other approval requirements of FACA."

Based on this language, the Office of Management and Budget is likely to be reluctant to approve a new FACA committee. Congress could, of course, direct the establishment of a committee, and either specify that it was subject to FACA, or exclude it from FACA.

If the group did come under FACA, the following requirements would have to be met:

- The agency must make an assessment that an advisory group is in the public interest.
- A letter must be sent to the Committee Management Secretariat at the General Services Administration, a notice of determination must be published in the Federal Register, and an action memo must be sent to the relevant Secretary.
- A charter must be prepared for the group. The charter should include the committee's official designation, objectives, scope, term length, official to whom it reports, the agency providing support, duties, operating costs, estimated

number of members, provisions for selecting chairperson and subcommittees, and termination date. The charter must be furnished to the Library of Congress.

- Each agency is required to establish uniform administrative guidelines and management controls.
- The committee must have balanced representation.
- Agency heads, in coordination with the Advisory Committee Management Officer (ACMO), prepare a list of proposed members that is submitted through the ACMO to the Secretary for approval.
- Committee organizers should coordinate with the ACMO and General Counsel (GC) when considering a subcommittee. Some subcommittees require separate charters.
- Terms on the committee are limited to two years.
- Meetings are open to the public. Anyone may attend. Meetings are announced in the Federal Register. An officer of the Federal Government must attend and approve the agenda beforehand. Meetings are closed only if there is a discussion of sensitive research and development matters or a discussion of a "national security matter."
- Records must be kept and are public documents.

- An agency is responsible for providing support services for any advisory group established by it.
- It is the responsibility of the relevant Secretary to ensure that the committee is informed of actions taken on the recommendation of the committee.
- The President must submit a Report to Congress on the activities, status, and changes in the composition of the group during the preceding calendar year. The relevant Secretary will make an annual review of each committee to determine whether it is carrying out its purposes, whether its responsibilities need to be revised, whether the committee needs to be merged or abolished. To assist the Secretary, each agency sponsoring an advisory group shall review each of its groups in January of each year.

2.3.6 Other Requirements

There are a variety of other statutes and regulations which apply to river operations such as the Clean Water Act, and the Wild and Scenic Rivers Act to name a few. Finally, in some instances, state and local plans and laws may apply.

CHAPTER 3 ALTERNATIVES

This chapter describes the alternatives being considered. It begins with a discussion of the institutional arrangements used in similar situations throughout the country to address multi-agency regional decisionmaking, then describes the Forum alternatives being considered, including the rationale for selecting them.

3.1 REVIEW OF OTHER EXAMPLES

As part of the process of formulating Forum alternatives, a review was made of other institutions that have been created in similar circumstances. A review was made of the published literature, and in addition, phone interviews were conducted with staff of entities that seemed to have some of the characteristics that a Columbia River Forum might need to possess to determine lessons learned.

3.1.1 Characteristics of Other Entities

The characteristics looked for in these entities included the following:

- They serve as a mechanism for resolution of issues between a number of governmental entities, often involving different levels of government, including Federal, State, and local agencies.
- They make decisions about scarce resources, with many competing uses and user groups.

- They provide mechanisms for both government involvement and the involvement of stakeholder groups and private citizens.
- They all were created after existing institutions were unable to resolve the issues, so had to prove effective despite pre-existing institutional arrangements and authorities.

The organizations reviewed were:

- Association of Bay Area Governments (ABAG)

This is a regional planning entity in the San Francisco Bay Area created as a joint powers authority by agreement of local counties and cities.

- Chesapeake Bay Program

The Chesapeake Bay Program is a U.S. Environmental Protection Agency (EPA) program to clean-up Chesapeake Bay. However, an extensive management structure and administrative has been created that includes Federal, state and local agencies, as well as stakeholder groups both in formulating and administering programs. Part of the effectiveness of this program is the Chesapeake Bay Commission, established by the three affected states to advise the legislatures of these states.

- Gulf of Mexico Program

This is another EPA clean-up program that has included Federal, state, and local agencies in planning and implementing a region-wide clean-up program.

- Puget Sound Water Quality Authority

This is an entity established by the Washington State Legislature to oversee water quality planning in the Puget Sound area.

- Ohio River Commission

This Commission was established by Congressional Act, as part of the Water Resources Planning Act of 1965, to provide coordinated planning for the use of the basin's water and related land resources. membership includes representatives of all the states in the basin, and the Federal agencies with related responsibilities.

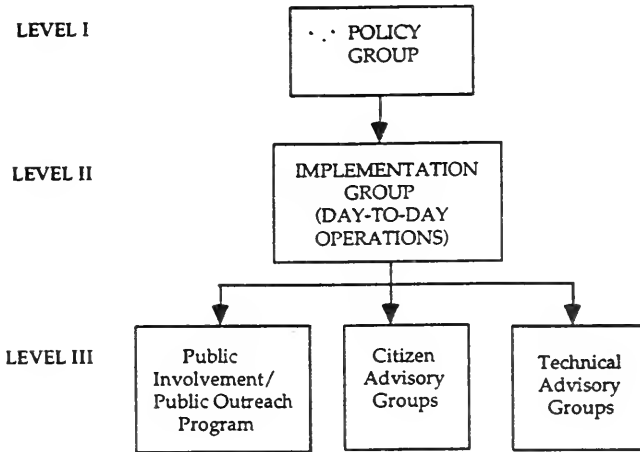
Additional information about these organizations is provided in Exhibit II.

3.1.2 Relevant Findings by SOR Team/Consultants

Here are a few observations about the characteristics of these programs that have relevance for SOR:

- When entities are formed for decisionmaking among multiple layers of government they must coexist within an existing web of relationships and authorities. Typically they are not given full management authority equivalent to the decisionmaking authority the SOR lead agencies now exercise on the Columbia River. These new entities are often planning entities – much like the Northwest Power Planning Council – which provide information and influence the decisions of other entities who retain decisionmaking authority. Alternatively, decisionmaking entities bring other agencies into their decisionmaking in such an complete way that decisions are made “as if” all the participants were party to the decision. Legally, however, the decisionmaking entities retain their decisionmaking authority.
- All of the entities have a policy group with executive level representation from the Federal or state agencies and/or senior elected officials (e.g. Governors) or their appointees.
- Most also have an implementation or management group responsible for day-to-day activities or operations. This committee often mirrors the policy group's membership, but with operation-level staff.
- Each program also has a significant public involvement and/or public outreach program, a set of citizen advisory committees, and a set of technical advisory groups. (See Figure 3)
- Several of these entities started out with essentially advisory status but have, over time, acquired statutory powers or are de facto decisionmaking bodies.

Figure 3
 "GENERIC" STRUCTURE FOR REGIONAL FORUMS



- It's normal for participating agencies to contribute staff who are physically located at the project. The cost of providing this staff comes from the participating agencies.
- The authority of the entity is strengthened if there is a legislative tie. This increases the chances that the legislation needed to implement the program will be passed. In the case of the Chesapeake Bay Program, the Commission serves this role. In the case of the Puget Sound Water Quality Authority, the report to the legislature provides a very visible way of surfacing issues. This may not be a significant issue for the Columbia River Regional Forum if the

limit of the Forum's authority is river operations. It might be important if the Forum becomes involved in water conservation issues, where state support for implementation would be essential.

3.2 A GENERIC DECISIONMAKING PROCESS

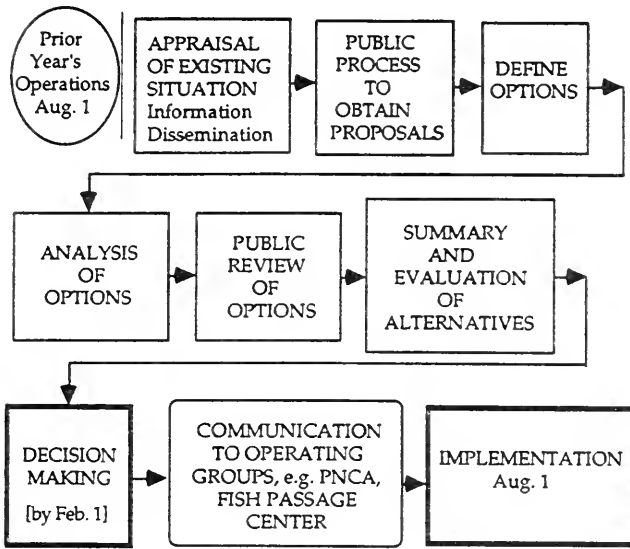
In the process of defining the existing decisionmaking process, the SOR Team came to recognize that one of the reasons there are concerns about the visibility of the existing decisionmaking process is that there is no formal and defined decision process followed now by the SOR lead agencies. This lack of visibility can lead to a loss of credibility, regardless of the decisions made.

As discussed earlier, there are several levels of decisions being made. The SOR will result in a System Operating Strategy. Subsequently there will need to be decisions made to revise or update the strategy, or interpret the strategy in light of changing conditions. Finally, there are decisions regarding specific operations that are planned for during the year and may affect real-time operations.

The SOR Team has identified two generic decisionmaking process, one for revisions and updates to the System Operating Strategy, and one for real-time operations, that clarify the existing process and provide opportunities for involvement in the decision. The SOR Team recommends that these generic decisionmaking process be used regardless of which of the institutional alternatives is selected. Because these generic decisionmaking processes are assumed for all alternatives, they are presented ahead of the alternatives themselves, to set the context for the alternatives. Figure 4 presents the recommended decision process for revising or updating the System Operating Review. Figure 5 presents the decision process for real-time operating actions.

Figure 4

ANNUAL PROCESS FOR SYSTEM OPERATING STRATEGY UPDATES



NOTE: This process is for annual updates to the SOS. A major change to the SOS would follow the same steps, but would not have to follow the same time frame.

3.2.1 Annual Review of the System Operating Strategy

As shown in Figure 4, the traditional date used as the beginning of a new operating year is August 1. [The rationale for this is driven more by power generation than other uses of the river, although it is not clear that any of the other uses would be materially benefited by a change in the beginning of the annual planning cycle.]

After August 1, the agencies would begin an analysis of the prior year's operations, make an appraisal of the existing year's situation, and estimate the water conditions for the following year. This information would then be disseminated to all stakeholder groups (groups representing various uses of the river) in the region. *It should be noted that if this planning cycle were to begin on August 1, 1994, for example, the planning would be for the water year beginning August 1, 1995, not the year beginning August 1, 1994. The planning process takes a full year.* Major decisions, such as revisions to the SOS, would be made by February 1, allowing time for the operators to develop detailed operational plans.

Once the analysis has been disseminated to the Region, the groups representing the various uses of the river would be invited to submit proposals for the operations that would benefit their use.

In the existing decisionmaking process, similar proposals are received. However, the process by which these proposals are generated is informal, and there is no clearly defined procedure for gathering all the proposals and subjecting them to a simultaneous review. As a result, there is no moment in time where everyone in the region knows what has been proposed and has an opportunity to assess the proposals side by side. This means there is little visibility to the process. It also means that there

are suspicions that stakeholder groups attempt to "get several bites of the apple" by submitting proposals at different times and in different forums.

Under the proposed decisionmaking process, there would be a visible process for soliciting proposals. The SOR lead agencies or the Forum would then take these proposals, develop alternatives, analyze the alternatives, and conduct a public review of them. Reports would be prepared that summarize both the technical evaluation of the alternatives and the public comment, and these would be submitted to the decisionmaking agencies or entity in time for a February 1 decision. The updated SOS would then be communicated to the operating groups, such as the PNCA and the Fish Passage Center. A detailed operating plan would then be developed by these groups, to be implemented beginning August 1st.

This cycle could be repeated on an annual basis. This annual cycle assumes that the decisions consist primarily of updates of the existing strategy. If major revisions to the strategy are going to be made, the sequence of steps in the decision process would remain the same, but the process could last longer than a year.

3.2.2 Real-Time Operating Changes

Real-time operating changes are changes made during the operating year, in response to requests from stakeholder groups. They may be caused by changes in water conditions, to take advantage of a profitable power sale, to improve river conditions for fisheries, to enhance recreational opportunities, or in response to problems with navigation or even accidents or safety concerns. Decisions must be made in "real-time" – that is, anything from just a few minutes to several weeks.

Real time decisions are always made within a framework such as an annual operating plan. This operating plan takes into account the overall strategy, existing agreements, and the legal rights of the various parties.

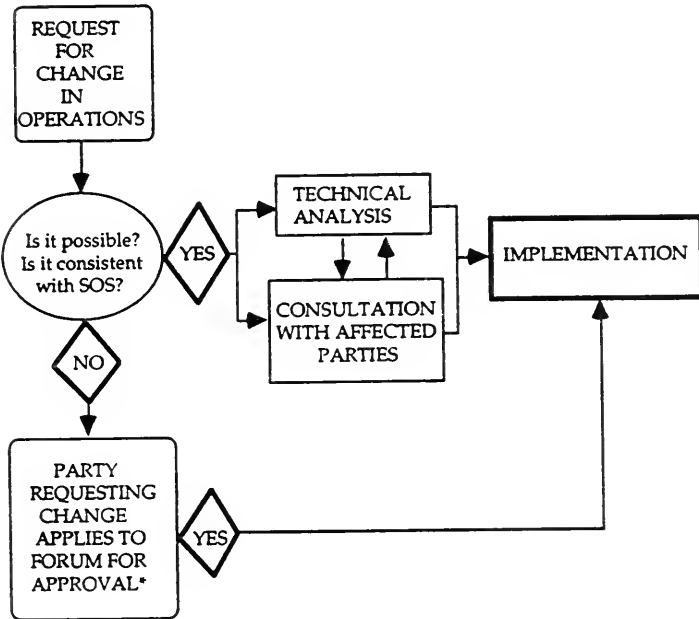
Typically an operating change would be requested by one of the stakeholder groups. The operators of the dams – the Bureau of Reclamation and the Corps of Engineers – would analyze the request to determine: (1) Is the request technically feasible, and (2) Is the request consistent with the System Operating Strategy? If the answer to both these questions is "YES," the operators would then analyze how best to satisfy the request, and also begin discussions with other stakeholder groups that might potentially be affected. In some cases a change in operations might be feasible and consistent with the SOS, but still require consultation between parties because there are tradeoffs between uses even within the relatively narrow band of operations specified in the System Operating Strategy. Because of the short time frame, the technical analysis and consultation take place during the same time period, and are limited to the parties the operators believe are directly impacted.

For example, the operators might consult with other PNCA signatories or the Fish Passage Center, and possibly Federal or state fisheries agencies. If a Regional Forum existed that had technical staff, consultations could also be made with Forum staff.

On those occasions where the operators determine that a request is technically feasible, but inconsistent with the System Operating Strategy, there is the potential for controversy over their interpretation of the Strategy. In the event of a dispute over whether a request is consistent with the Strategy, the party requesting the operating

Figure 5

RESOLUTION OF REQUESTS FOR REAL TIME OPERATING CHANGES



* The nature of the approval process would vary with the type of Forum selected.

change could appeal to the Forum. The nature of that appeal process would vary with the type of Forum selected.

Again, it should be noted that the SOR Team recommends that these decisionmaking processes be followed in all Forum alternatives. These generic processes do not represents a significant departure from the existing decisionmaking process, except that these processes would be visible to the public.

3.3 MAJOR CHARACTERISTICS OF FORUM ALTERNATIVES

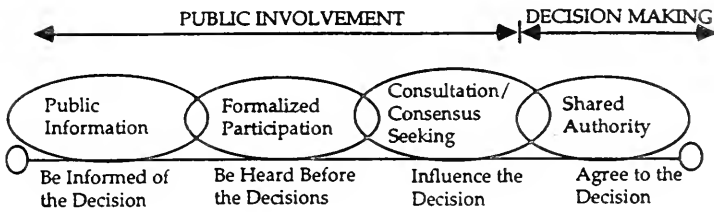
During the formulation of alternatives the SOR agencies consulted with stakeholder groups and conducted a workshop of these groups to discuss possible alternatives. In these discussions it became clear that there were two principle dimensions that distinguished alternatives. The workshop participants defined these dimensions as "control" and "sunshine." In the discussion of objectives at the beginning of this report, the "control" objective was labeled "decisionmaking" and the "sunshine" objective was labeled "visibility."

Decisionmaking has to do with who makes the actual decisions, how the decision are reached, for what purposes and the mechanisms by which the concerns of the public are incorporated into the decision. Visibility has to do with such issues as whether the public is fully informed of the issue and what opportunities are provided for the public to participate in the decisionmaking process.

As Figure 6 shows, they may actually be viewed as part of the same continuum of alternatives:¹

¹ Adapted from Creighton, James L. Involving Citizens in Community Decision Making: A Guidebook, Program for Community Problem Solving, 1301 Pennsylvania Avenue, Suite 600, Washington D.C. 20004, 1992.

Figure 6 - LEVELS OF INVOLVEMENT IN DECISIONMAKING



As suggested in Figure 6, there are different mechanisms for involving the public in decisions, depending on the amount of influence individuals and groups expect to exert on the decision. At one end of the spectrum, groups are simply kept informed of decisions that have been made through a public information program. Moving further along the spectrum, individuals and groups are given the opportunity to comment upon alternatives in formal processes such as public hearings or public comment periods. They are heard before the decision is made, but agencies retain full decisionmaking authority. Still further along the spectrum, the agencies choose to have extensive consultation with the stakeholders. In some cases the agencies make actually seek as broad a consensus as possible before making a decision, depending on how much support is required for a decision to be implemented. This consultation/consensus-seeking process would require a full and complete public involvement process, with stakeholders involved in every phase of the decisionmaking process. Not every stakeholder would necessarily agree with the decision, but they would clearly have had opportunities to influence the decision.

All three of these points along the spectrum can still be called "visibility." The agencies have not delegated the ultimate decisionmaking authority, but have voluntarily provided opportunities for others to influence the decision.

At the final point along the spectrum, there is actual shared authority. Stakeholders, or agencies representing them, become actual parties to the decision. They exert legal control over the substantive decision that is being made. This end of the spectrum is where participants other than the SOR lead agencies share in the actual "control" of river operations.

3.3.1 Alternatives for Decisionmaking Authority

For some stakeholder groups, the "bottom line" is defined as who actually makes the final decision, independent of how many opportunities the public may have to participate prior to the decision. Presently decisions are made by the SOR lead agencies, the Bonneville Power Administration, Bureau of Reclamation, and Corps of Engineers.

The decisionmaking authority options are:

3.3.1.1 Decisionmaking Option: Decisionmaking by the SOR lead agencies

The first category of alternatives would be for decisions to continue to be made by the Bonneville Power Administration, Bureau of Reclamation, and Corps of Engineers. The SOR lead agencies could significantly improve levels of public involvement and influence in their decisionmaking, but there would be no fundamental shift in decisionmaking authority.

No Congressional action for changes in authority would be required for this alternative.

3.3.1.2 Decisionmaking Options: Decisionmaking by a Federal Consultation Forum

The term "Federal Consultation Forum" is used here to include the SOR agencies and other Federal agencies with jurisdiction. At the present time, this would include the SOR agencies and the National Marine Fisheries Service (NMFS) and the U.S. Fish & Wildlife Service, who have jurisdiction as a result of their responsibilities under the Endangered Species Act (ESA). The intent of this option is that the five agencies would act as a consultative decisionmaking group, much as the SOR agencies have throughout the SOR study. The five agencies would need to negotiate a single decisionmaking process that would consider all the demands on the river as part of the same decisionmaking or planning cycle.

At the present time there is a significant disconnect between the planning process in which the SOR agencies engage to guide river operations and the decisionmaking process under the ESA. ESA requirements are set up under a separate legislative mandate, and the ESA agencies are required to give primary consideration to protecting the species, not economics. The timing of ESA decisions is often very short, based on the actual water in the river, and can preempt prior planning by the SOR agencies. Also, since there are different endangered species, with different agencies concerned about them, it is even possible to imagine a scenario in which the requirements from the ESA agencies could be contradictory or mutually exclusive, e.g. water withdrawals ordered to protect one species could hurt another.

This alternative assumes that all five agencies believe the interests they represent will gain more from working together than from separate processes. If this is the case, the agencies would develop an integrated planning process that allows all the interests to be addressed simultaneously, or at least employ the same planning cycle.

This alternative could be implemented by the five agencies without the need for additional authority from Congress. The agencies would negotiate an agreement on the process to be followed, staffing arrangements, funding, etc.

3.3.1.3 Decisionmaking Option: Decisionmaking by a Single Federal Agency

In this alternative, a single Federal agency would make all operational decisions for the river. Presumably this would be one of the SOR lead agencies, since they have operational experience. If this were the case, the remaining issue that would have to be resolved would be the role of the National Marine Fisheries Service, which holds a strong position in decisionmaking related to endangered species issues. Alternatively, the National Marine Fisheries Service could be designated as the decision maker, because of its role in protecting endangered species.

The arguments that stakeholders might make for consolidating decisionmaking in one agency could be: (1) simplifying the decisionmaking process, and (2) consolidating decisionmaking in the hands of an agency whose mandate is closest to that of the stakeholder group, (i.e., if your interest is power generation, then you might support consolidation in the hands of the agency with the strongest mandate for power generation.)

Selecting a single Federal agency as decision maker would require Congressional action to assign decisionmaking authority, and remove responsibility from the other two agencies.

3.3.1.4 Decisionmaking Option: Decisionmaking by a New Entity

The third alternative would to establish a new decisionmaking body whose membership would include representatives of all the various uses of the river. Typically this group would take the form of a compact or commission. This body would have to be Congressionally mandated. Congress could establish a group that would take over the decisionmaking authority of the SOR lead agencies in regard to river operations.

Earlier in this document there was a discussion of alternative approaches used elsewhere. Among those examples, the Ohio River Basin Commission is the closest example of what this alternative might look like.

There are several alternatives for how this body could be structured:

- Federal/State Agencies Only

A Board could be established that included representatives of all the relevant Federal and state agencies. For example, representative of Bonneville, Reclamation, and the Corps would be on the Board, possibly with additional representation from the National Marine Fisheries Service and/or U.S. Fish & Wildlife Service. Each state would also have a defined number of agency

representatives, including such possibilities as the heads of departments of natural resources, commerce, energy, parks and recreation, fish and game.

- Agencies/Stakeholders

An alternative composition would be to include the SOR lead agencies at the table, and possibly some state agencies, but to also include some representatives of stakeholder groups. For example, the Governors might be asked to designate individuals representing power interests, fish and wildlife interests, or other interests such as recreation, navigation, etc.

- State Representatives

The third alternative is that the Board could be established to represent states only, with no representatives from federal or state agencies. An example of this is the Northwest Power Planning Council, where the Governors of each of the four Northwest states each pick two representatives to the Council.

3.3.3 Alternatives for Levels of Public Involvement

There are alternatives for how much involvement of the public occurs before the decisions are made, regardless of who actually makes the decision. These alternatives can involve several dimensions:

- Public Information: How much information -- and how effectively presented -- is provided to stakeholders and the general public.

- **Public Comment:** What opportunities are provided for the public to comment upon the decisions being made.
- **Access:** What opportunities are provided for interaction with decision makers prior to the decision.
- **Neutral Evaluation:** To what extent are both the technical studies and the comment from the public reviewed by people who do not have a stake in the outcome of the decision.

With this many dimensions, the number of possible options becomes quite large. For this reason, the SOR agencies have created several public involvement options that combine various features of these dimensions. These options are:

3.3.3.1 Public Involvement Option: Complete Public Involvement Program

In this option, the Forum would develop and implement a complete public involvement program, providing stakeholders and the public the opportunity to be consulted prior to the final decision. The term "complete public involvement program" includes the following attributes:

- The public is provided with full information about the nature of the issue, the alternatives being considered, and the impacts associated with them.
- Opportunities for the public to participate are provided at all stages of the decisionmaking process including problem definition, formulation of

alternatives, evaluation of alternatives, and selection of the preferred alternative.

- The forums used for public participation provide for interaction between the public and decision makers.
- The public is given a full accounting of how its comments were incorporated in the decision.
- Whenever possible, the agencies collaborate with the public to select an option that enjoys broad public support.

Implementing such a program is within the current authority of the SOR lead agencies. In fact, each of the agencies has guidance that encourages such an approach,² and this approach has been used with the System Operation Review. It has not previously been extended to annual operations planning however.

Please see the scenario on page 63 which illustrates what a "complete public involvement program" might look like. This scenario is just for illustration purposes. The actual program could look different.

² Creighton, James L., *Public Involvement Manual: Involving the Public in Water and Power Resources Decisions*, U.S. Bureau of Reclamation, 1980, U.S. Government Printing Office Washington D.C. 20402., Document 024-003-00139-2. Creighton, Delli Priscoli, Dunning (Eds.) *Public Involvement Techniques: A Reader of Ten Years Experience at the Institute for Water Resources*, Fort Belvoir, VA: U.S. Army Corps of Engineer's Institute for Water resources, May 1983, IWR Research Report 82-R1. Creighton, James L. *BPA Public Involvement Guide*, Portland, OR: Bonneville Power Administration, 1984.

3.3.2.2 Public Involvement Option: Recommendation Developed by an Existing Regional Entity

The premise of this option is to empower an existing regional entity to both conduct a public involvement program and make an independent review of the technical information, developing a recommendation that would then be presented to the SOR lead agencies. While this would be an advisory recommendation, the political realities would be such that the recommendation would undoubtedly carry great weight with the SOR lead agencies. In addition, some mechanism would need to be established to ensure that the SOR lead agencies reported back to the regional entity on any deviations from the proposal, and the reasons for those deviations.

Ideally the regional entity that would develop this proposal would: (1) have qualified technical staff who would be able to evaluate the technical basis for the decision, and (2) have a legal mandate/decisionmaking representation for all the uses of the river. One entity with technical expertise, the Northwest Power Planning Council, has a mandate that covers power, and also fish and wildlife, but not some of the other uses of the river, such as navigation, flood control, recreation, etc. However, it comes the closest of any existing regional entities to an entity that would be credible or be perceived as "neutral" by all sides. It is not known at this time whether other users would find the Power Council credible in this role. This would be a necessary precondition for this alternative to have any advantage over the previous option.

The SOR lead agencies could request that the Power Council develop such a recommendation. The likely legal vehicle would be a Memorandum of Understanding (MOU) between the SOR lead agencies and the Council. This MOU might explicitly

state that for the purposes of this recommendation the Council should take into account and attempt to balance all uses of the river.

Council staff would act as the technical staff to review the technical basis for the recommendation. Presumably some compensation would be paid by the SOR lead agencies to the Council for this staff time, or for hiring additional staff. Because they cannot forego their legal accountability under this option, the SOR lead agencies would undoubtedly also conduct a review of the technical basis for the decision.

3.3.2.3 Public Involvement Option: Recommendation by a New Entity

An option to having a recommendation developed by an existing entity would be to have recommendations developed by the board of directors of a new entity specifically created to advise on river operations. The closest examples of such a entity, from among the examples of approaches used elsewhere presented earlier in this chapter, would be the boards of the Chesapeake Bay Program and the Gulf of Mexico Program. There are three variations on membership for the board of this new entity:

- **Federal/State Agencies Only:** The board would be composed of members of Federal and state agencies only.
- **Agencies/Stakeholders:** The board would include representatives of federal and state agencies, with some representation from stakeholder groups (e.g. power interests, recreation interests, etc.)
- **State Representatives:** The Governors of the four Northwest states would appoint the members of the Board.

To ensure the objectivity of technical analysis, the board would also hire and oversee technical staff. This staff would either be donated by participating agencies, and physically located with the new board, or each agency member (including state agencies) would be assessed to pay for technical staff.

3.3.3 List of Options

In theory, any of the decisionmaking authority options could be combined with any of the public involvement and influence options to form a variety of Forum alternatives, as summarized in the following matrix.

Table 3: List of Theoretical Options

DECISIONMAKING OPTIONS	PUBLIC INVOLVEMENT OPTIONS
Decisionmaking by the SOR lead agencies	Complete Public Involvement Program
Decisionmaking by the SOR lead agencies	Recommendation from an Existing Entity
Decisionmaking by the SOR lead agencies	Recommendation by a New Entity
Decisionmaking by a Federal Consultation Forum	Complete Public Involvement Program
Decisionmaking by a Federal Consultation Forum	Recommendation from an Existing Entity
Decisionmaking by a Federal Consultation Forum	Recommendation by a New Entity
Decisionmaking by a Single Federal Agency	Complete Public Involvement Program
Decisionmaking by a Single Federal Agency	Recommendation from an Existing Entity
Decisionmaking by a Single Federal Agency	Recommendation by a New Entity
Decisionmaking by a New Entity	Complete Public Involvement Program
Decisionmaking by a New Entity	Recommendation from an Existing Entity
Decisionmaking by a New Entity	Recommendation by a New Entity

In practice, it seems unlikely that once a new entity was established it would seek either a recommendation from another existing entity, or a recommendation by still another new entity. Thus the only combination that seems appropriate with Decisionmaking by a New Entity would likely be with a Complete Public Involvement Program.

3.4 FORUM ALTERNATIVES

In order to focus on the important differences among all possible alternatives, the SOR Team decided to restrict the analysis to the following alternatives:

- FORUM 1: Decisionmaking by the SOR lead agencies + a complete public involvement program.
- FORUM 2: Decisionmaking by the SOR lead agencies + recommendation by an existing regional entity.³
- FORUM 3: Decisionmaking by the SOR lead agencies + recommendation by a new entity.⁴
- FORUM 4: Decisionmaking by a Federal Consultation Forum [the SOR agencies + other Federal agencies with jurisdiction (e.g., NMFS and USFWS)] + a complete public involvement program.

³ The assumption is made that the existing regional entity would conduct a complete public involvement program.

⁴ The assumption is made that the new entity would conduct a complete public involvement program.

- FORUM 5: Decisionmaking by a New Entity + a complete public involvement program.
- FORUM 6: Decisionmaking by one Federal operating agency (e.g. Corps or Reclamation) + a complete public involvement program.
- FORUM 7: Decisionmaking by another Federal agency (e.g. NMFS) + a complete public involvement program.

These alternatives are shown in Figure 7 on the following pages. This figure contrasts what would occur at each step of the annual update decisionmaking process described earlier in this chapter.

Figure 7. The Process for Annual Decisionmaking, by alternative - FORUMS 1 through 4

PROCESS STEPS	FORUM 1 ENHANCED PUBLIC INVOLVEMENT	FORUM 2 RECOMMENDA- TION BY EXISTING ENTITY	FORUM 3 RECOMMENDA- TION BY NEW ENTITY	FORUM 4 DECISION BY FEDERAL CONSULTATION FORUM
APPRAISAL OF EXISTING SITUATION	Appraisal conducted by Federal agencies	Appraisal conducted by Federal agencies.	Federal agencies prepare report for new entity. New entity has staff to analyze Federal report. Options: reps of state and Federal agencies; Governor appoints reps of river uses.	Appraisal conducted by appropriate Federal agencies, with jurisdiction over resources affected by river operations
PUBLIC PROCESS TO OBTAIN PROPOSALS	Public involvement program conducted by Federal agencies. Options: written public comment period; public workshops or meetings	The existing entity initiates and conducts public involvement program. Criteria for entity: qualified staff to conduct; representative of river uses	New entity initiates and conducts public involvement program.	A combined or joint public involvement program conducted by Federal agencies. Options: written public comment period; public workshops or meetings
DEFINE OPTIONS	Federal agencies screen options and combine into alternatives.	Non-Federal entity proposes options, following consultation with Federal agencies.	Options proposed by new entity or its staff.	Federal agencies jointly screen options and combine into alternatives.
ANALYSIS OF OPTIONS	Options: Federal agencies complete analysis; Federal agencies call on working groups for significant issues; analysis done by working groups.	Options: Federal agencies complete analysis; non-Federal agencies conduct analysis; analysis conducted jointly by agencies and entity.	Options: analysis conducted by staff of new entity; analysis conducted jointly by staff of new entity and Federal agencies.	Options: Appropriate Federal agencies complete analysis; Federal agencies call on working groups for significant issues; analysis done by working groups.
PUBLIC REVIEW OF OPTIONS	Federal agencies conduct public review process. Options: written public comment; public workshops or meetings.	Non-Federal entity designs and conducts public review process.	Public review process designed and conducted by staff of new entity, under direction of new entity management.	Federal agencies conduct joint public review process. Options: written public comment; public workshops or meetings.
SUMMARY AND EVALUATION OF ALTERNATIVES	Completed by Federal agencies. Will be made available to public after decisionmaking.	Recommendations prepared by non-Federal entity and transmitted to Federal agencies.	Recommendation approved by new entity.	Jointly completed by Federal agencies. Will be made available to public after decisionmaking.
DECISION- MAKING	Decision by Federal agencies. Agencies publish a summary of why decision was made and relationship to public comment.	Decision by Federal agencies. Agencies publish a summary of why decision was made and relationship to public comment.	Decision by Federal agencies. Agencies publish a summary of why decision was made and relationship to public comment.	Decision shared among several Federal agencies including those with jurisdiction over river resources. Agencies publish a summary of why decision was made and relationship to public comment.
COMMUNI- CATION TO OPERATING GROUPS	Publication of Annual Operating Plan.	Publication of Annual Operating Plan.	Publication of Annual Operating Plan.	Publication of Annual Operating Plan.
IMPLEMEN- TATION	Projects operated by Bureau of Reclamation and Corps of Engineers	Projects operated by Bureau of Reclamation and Corps of Engineers.	Projects operated by Bureau of Reclamation and Corps of Engineers.	Projects operated by Bureau of Reclamation and Corps of Engineers.

Figure 7. (cont.) The Process for Annual Decisionmaking, by alternative - FORUMS 5 through 7

PROCESS STEPS	FORUM 5 DECISION BY NEW ENTITY	FORUM 6 DECISION BY ONE OPERATING AGENCY	FORUM 7 DECISION BY ONE OTHER FEDERAL AGENCY
APPRAISAL OF EXISTING SITUATION	Congress authorizes new decisionmaking body to make operating decisions for the river. New entity hires staff to appraise existing situation.	Appraisal conducted by the one operating agency.	Appraisal conducted by the Federal agency.
PUBLIC PROCESS TO OBTAIN PROPOSALS	New entity initiates and conducts public involvement program.	Public involvement program conducted by the one operating agency.	Public involvement program conducted by the Federal agency.
DEFINE OPTIONS	Options proposed by new entity or its staff.	The operating agency screens options and combines into alternatives.	The Federal agency screens options and proposes.
ANALYSIS OF OPTIONS	Analysis conducted by new entity.	Analysis conducted by the operating agency.	Options: analysis conducted by Federal agency analysis conducted jointly by Federal agency and SOR agencies.
PUBLIC REVIEW OF OPTIONS	Public review process designed and conducted by new entity management.	Public review process designed and conducted by the operating agency.	Public review process designed and conducted by the Federal agency.
SUMMARY AND EVAL- UATION OF ALTERNATIVES	Summary and evaluation made by staff of new entity under the direction of management.	Evaluation prepared by the operating agency and transmitted to operating agencies.	Evaluation prepared by the Federal agency and transmitted to operating agencies.
DECISION- MAKING	Decision made by new entity and rationale described to public and Federal agencies.	Decision made by the operating agency and rationale described to the public and other Federal agencies.	Decision made by Federal agency and rationale described to public and other Federal agencies.
COMMUNI- CATION TO OPERATING GROUPS	Annual Operating Plan transmitted to Federal agencies.	Annual Operating Plan transmitted to the other operating agency and others.	Annual Operating Plan transmitted to operating agencies and others.
IMPLEMEN- TATION	Projects operated by Bureau of Reclamation and Corps of Engineers under direction of new entity.	Projects operated by Bureau of Reclamation and Corps of Engineers under direction of the operating agency.	Projects operated by Bureau of Reclamation and Corps of Engineers under direction of the other Federal agency.

3.5 WHAT WOULD A FORUM LOOK LIKE IN ACTION

This description of alternatives is necessarily brief. In order to illustrate what the operations of a forum would be like in actual practice, a hypothetical scenario has been prepared describing one of the alternatives -- Forum 4 -- and is provided below. This is just for illustration purposes, and is not intended to prejudge the selection of any particular alternative.

A Hypothetical Scenario THE FEDERAL CONSULTATION FORUM

By 1995, the five Federal agencies with jurisdiction for Federal action on the Columbia River had signed an agreement outlining a joint planning cycle permitting planning decisions of all the agencies to be made in the same time frame, and defining the consultation process between the agencies.

Under this agreement, each agency agreed to annually designate a staff person who would be a full-time member of a Columbia River planning and operations team. This team was set up to be in existence for a minimum of two years. During the first year the team would be the staff responsible for planning the operations for the following year, subject to decisionmaking by the five agencies. During the second year the team would actually manage the operations of the river based on the plan it developed. The team would then be responsible for evaluating how well the actual operations succeeded in meeting the objectives of the plan.

The members of the team were housed in a single office, with adequate support staff. The then current managers of river operations were made available to the team on an "as needed" basis. [In the second year the first team was joined by a new team, which occasionally sat in on meetings about operations decisions as a way of increasing its knowledge of river operations].

The year began with the publication of an annual report which summarized the past year's operations, the current and predicted water conditions, and issues (such as new research about the linkages between flows and fisheries). There was also an Annual Operations Symposium. The symposium provided a more extended discussion of the information in the report, followed by workshops during which participants had an opportunity to prepare and submit Proposed Operations. All Proposed Operations had to be submitted by a specific date (about 15 days after the symposium), much like a contracting proposal, and had to contain specific information, in order to be considered.

One of the responsibilities of the five-agency team was to develop a computerized model that would permit groups advocating an operation to get a quick (in less than 15 minutes) statement of the potential consequences of that proposal. Although this model was not available in the first year, in subsequent years it was used in workshops during which regional interests could try out "what if" proposals before submitting their actual Proposed Operations.

Each of the four Northwest states, an organization representing Indian tribes, and the PNCA were then invited to select a member who would serve as part of a task force along with the five member team described above. The role of the task force was to review the proposed operations, then develop a recommended operations plan. The five agencies made a commitment that if the task force was able to reach agreement on a proposal, the agencies would circulate this proposal as their draft plan, subject to public review. [This process was based on the negotiated rulemaking procedures followed by U.S. EPA and others.] Task force decisions on each Proposed Operation were documented so that the proponent could be informed if the proposal had been adopted, and if not, why not.

The task force was able to develop consensus on all but two issues, and defined the alternatives and the basis for disagreement on those two alternatives. The five agencies announced the task force recommendations as the agencies' draft plan, and invited public comment on the draft, including the options on the two unresolved issues. A newsletter was distributed describing the draft plan and the options. In addition, individuals or groups which had proposed an operation received a notice informing them of the disposition of their Proposed Operation under the draft plan. Four public meetings were held regionally. In addition, public comment was accepted by mail. A summary of public comment was then prepared.

A final meeting occurred, attended by the Administrator and Regional Directors of the five Federal agencies. During this meeting the five-member team presented the draft plan, followed by any members of the task force who wished to comment, and a summary of the public comment received in meetings or in writing. Although called a "hearing," this meeting was an informal process during which the five decision makers could ask questions and interact with the presenters. The room was arranged so that the five decision makers were seated like a panel at one table, with a panel table opposite them for presenters. In addition, the decision makers could, by mutual agreement, call in outside experts or leaders of interest groups whose opinion they wanted to hear before reaching a decision.

Following the "hearing," the five decision makers had a fifteen-day period during which they negotiated an agreement on a final plan. The agreed-upon plan was documented in a brief Record of Decision that was distributed to everyone who participated in the process in any manner (e.g. by submitting a proposal, attending a public meeting, or writing a comment) or to appropriate mailing lists of the five agencies.

The five member planning team then became the operations management team for the coming year, and a new planning team began the cycle over again.

CHAPTER 4 EVALUATION METHODOLOGY

As presented elsewhere, the SOR agencies first concluded that there were no environmental impacts associated with the Forum alternatives, since environmental impacts are associated with the content of decisions being made, not the administrative process by which they were made. The SOR agencies then turned to developing "institutional criteria" designed to assess how well each Forum alternative satisfied the purposes for the Forum.

Initially the SOR identified the following list of criteria for an effective Regional Forum:

- Results in clear, understandable procedures
- Develops understanding/educate public about river operations
- Develops clear, implementable SOS.
- Allows for future changes
- Reduces legal/political challenges
- Consolidates decisionmaking
- Keeping costs minimal
 - Cost to get in place
 - Cost to operate annually
 - Cost to Participate
 - o State, tribes, and other Federal agencies
 - o Non-governmental organizations
- Promotes trust
- Provides equitable treatment of all river uses
- Maintain accountability

Subsequently, the SOR Team attempted to evaluate the alternatives shown in Chapter 3 using these criteria. This experience led staff to conclude that certain of the criteria did not distinguish between alternatives. The list of criteria that did not distinguish between alternatives included:

- Results in clear, understandable procedures
- Develop understanding/educate public about river operations
- Develops clear, implementable System Operations Strategy.
- Allows for future changes

Further analysis showed that these four criteria are actually better treated as objectives for designing alternatives. It is certainly desirable, for example, to have clear, understandable procedures. But this remains true regardless of which alternative is selected, and there was no basis for assuming that one of the alternatives would do a better job of generating clear, understandable procedures than any of the others. The same rationale applied to the other three criteria.

Based on this preliminary analysis, the following criteria were found to be useful in discriminating between alternatives:

- Reduces legal/political challenges: The new Forum has sufficient credibility that decisions made by the Forum are not as frequently challenged politically or legally. Decisions "count," once made.

- **Consolidates decisionmaking:** The new Forum successfully consolidates the number of other places/forums where decisions are made. The ultimate goal would be "one-stop decisionmaking."
- **Cost to implement:** This criterion has three elements:
 - **Cost to get in place:** The costs to get the needed authorities, agreements, or funding to implement the alternative.
 - **Cost to operate annually:** The cost to operate the Forum once it is in place.
 - **Cost to build staff capability:** The costs of getting staff fully educated and competent to perform new tasks.
- **Cost to Participate:** This criterion has to do with the time, staff costs, and energy it takes for all parties to participate in decisions. The costs to participate could be different for each alternative depending on the type of organization. The two types of organizations that were analyzed are:
 - State, tribes, and other Federal agencies
 - Non-governmental organizations
- **Trust:** Confidence or faith in the decision makers to make a wise decision, or to consult with the public in a fair, and open manner.
- **Equitable treatment of all river uses:** The extent to which all groups perceive they receive the same treatment from the Forum as any other group.

- **Accountability:** The extent to which it is clear who is responsible for making decisions and accepts political, legal and financial responsibility for those decisions.

After identifying the criteria, the SOR team conducted another internal workshop. This workshop demonstrated that the criteria above were useful in discriminating between alternatives. However, there were considerable differences of opinion within the team on how well the alternatives fit the criteria. In fact, depending on the assumptions used, and projections about how the public might react, exactly opposite rankings of alternatives were made based on the same criteria.

The SOR team then presented the alternatives and proposed evaluation criteria at a stakeholders workshop. Participants included representatives from power interests, fish interests, Indian tribes, flood control interests, a representative from a Governor's office, and the Power Planning Council.

Participants argued that the real issue was "who made the decision, and for what purposes." They recommended the creation of an additional "single-agency decision maker" option. They also observed that different sets of assumptions could result in significantly different rankings even using the same criteria.

Based on the stakeholders workshop, the SOR team added a "single Federal agency decision maker" option. In addition, the SOR team added an analysis based on who makes the decision (control), and how much involvement the public has in decisionmaking.

A new draft was then prepared and another stakeholder workshop was held. During this workshop concerns were expressed that the region was already "over-processed." If the proposed Forum would reduce the number of processes, it was argued, then it might be desirable. If it was simply a new process, overlaid on top of existing processes, it would be undesirable. The study team was urged to develop an alternative to reduce the amount of "process" by consolidating or synchronizing processes.

During an internal workshop, the study team carefully analyzed the potential for consolidating or synchronizing processes. Several of the most significant processes, such as the deliberations of the Northwest Power Planning Council or actions under the Endangered Species Act, are established by law and cannot be eliminated without Congressional action. That leaves the possibility of synchronizing processes, and developing a shared process for generating the information upon which decisions could be made. At the present time, it appears that the most serious disconnect is between the planning process used by the SOR agencies, and the process by which decisions are made to take actions to protect fisheries under the terms of the Endangered Species Act. In part this is because the National Marine Fisheries Service and U.S. Fish and Wildlife Service have essentially been operating under "emergency" conditions. As a result, decisions are sometimes made right up to and into the operational year that conflict with decisions made in the annual operations planning processes of the SOR agencies. Considerable potential exists for streamlining existing conditions if the five agencies can negotiate a consultation process and joint planning cycle that still protects each agency's ability to carry out its mandate.

Based on this analysis, the study team added an additional option (Option 4) called the "Decisionmaking by a Federal Consultation Forum + complete public involvement program" option. Although having a five-agency decisionmaking process may not

seem to represent much of a consolidation, it may represent a considerable reduction in time and cost if there is no need for two completely separate processes.

Based on the combined results of several internal workshops, and the stakeholder workshops, the SOR team has concluded that beyond certain generalizations it is extremely difficult to evaluate the alternatives without specifying assumptions, as different assumptions may lead to very different conclusions about the impacts of the options. The evaluation shown in Chapter 5 attempts to identify alternative assumptions, and the conclusions that might be drawn based on those assumptions. These assumptions include assumptions of both the SOR team and participants in the stakeholders' workshop.

CHAPTER 5

COMPARISON OF ALTERNATIVES

The comparison of alternatives first addresses environmental impacts, then discusses the institutional criteria discussed in Chapter 4.

5.1 ENVIRONMENTAL IMPACTS

The SOR agencies have concluded that environmental effects result from implementing the System Operating Strategy and are therefore related to the content of decisions about river operations rather than the process used to reach those decisions. Thus, it is concluded that *there are no environmental impacts associated with any of the Forum alternatives.*

The only basis for determining that one Forum alternative would be environmentally preferable to another would be if one could predict with certainty what kind of decisions would be made by different Forums. The SOR agencies believe it is not possible to predict the content of decisions that would be made by a particular Forum based on the composition of the Forum or the amount and type of public involvement the Forum employs.

The SOR environmental analysis pertains to, and focuses on, the System Operating Strategy alternatives since decisions about these alternatives will have effects which must be considered by the SOR lead agencies as required by the National Environmental Policy Act (NEPA). Upon establishment of a Forum, future revisions to an operating strategy, annual implementation decisions, and other decisions which affect the strategy and its implementation, would have to be assessed by the SOR lead

agencies to determine whether additional assessment of the environmental impacts of those decisions is required by NEPA. It is the SOR agency's intent, however, that the SOR analysis will be broad enough in its consideration and assessment of operating strategy alternatives to enable future strategy refinements without major environmental reviews.

5.2 INSTITUTIONAL CRITERIA

This section provides a summary of the differences between the alternatives based on the institutional criteria discussed in Chapter 4. The alternatives evaluated include:

- FORUM 1: Decisionmaking by the SOR lead agencies + a complete public involvement program.
- FORUM 2: Decisionmaking by the SOR lead agencies + recommendation by an existing regional entity.
- FORUM 3: Decisionmaking by the SOR lead agencies + recommendation by a new entity.
- FORUM 4: Decisionmaking by a Federal Consultation Forum (all Federal agencies with jurisdiction) + a complete public involvement program.
- FORUM 5: Decisionmaking by a New Entity + a complete public involvement program.

- FORUM 6: Decisionmaking by one Federal operating agency (e.g. Corps or Reclamation) + a complete public involvement program.
- FORUM 7: Decisionmaking by another Federal agency (e.g. NMFS) + a complete public involvement program.

A more detailed description of these alternatives was provided in Chapter 3.

The anticipated institutional impacts of these alternatives is provided below. These impacts are also summarized in Tables 4 and 5 at the end of this section.

5.2.1 Criterion: Consolidates Decisionmaking

This criterion has to do with the number of points at which people can influence a decision. The goal (with this criterion) is to consolidate all the various decisionmaking processes, providing all the parties with just "one bite" at each decision.

FORUM 5 (Decisionmaking by a new entity), FORUM 6 (Decisionmaking by one of the existing operating agencies); and FORUM 7 (Decisionmaking by another Federal agency), all would consolidate decisionmaking in the hands of a single agency. Thus, all three alternatives would result in consolidation, and are considered equal in this respect. FORUM 4 (Decisionmaking by a Federal Consultation Forum (five Federal agencies) represents a consolidation over the existing situation because there would be only one decisionmaking process, albeit five decision makers.

FORUM 1 (Enhanced public involvement program) presents no change from the existing condition. FORUM 2 (Recommendation by an existing entity) and FORUM 3

(Recommendation by a new entity) could actually increase the number of points at which people attempt to influence the decision. Interests might attempt to influence the initial recommendation, then also attempt to influence the agencies to alter or accept the recommendation.

5.2.2 Criterion: Reduces Legal/Political Challenges

This criterion relates to whether or not the decisions of the Forum would have sufficient legitimacy to reduce the number of legal or political challenges.

Discussions with stakeholders showed conflicting positions. Some argued that FORUM 5 (Decisionmaking by a new entity) would result in reduced legal or political challenges because the parties would all be at the table. Others argued that these alternatives would merely change who sues who. In the long-run, they argued, the only thing that will reduce political and/or legal challenges is if all the parties are in agreement on the substantive decision.

FORUMS 1 through 3 do not change who makes the final decision, i.e., the three operating agencies. These alternatives might result in increased credibility for decisions, which could have some impact on litigation. However, if the basis for litigation is the substantive decision, these alternatives do not necessarily lead to a different substantive decision. FORUM 4 increases the number of decision makers, but might reduce legal or political challenges because the ESA agencies are sitting at the table with the SOR agencies. FORUMS 6 and 7 reduce the number of decision makers, but there is no basis for assuming that they would result in different substantive decisions.

5.2.3 Criterion: Trust

In theory, trust would be related to such dimensions as the openness and visibility of decisionmaking. In practice, trust is often strongly related to the degree to which a particular agency has a mandate that favors a particular use. To the extent one group feels greater trust towards an agency because it knows its concerns will be considered, others are likely to mistrust that agency, for fear the other users concerns will be given undue consideration.

FORUMS 1 through 3 preserve the existing SOR decision makers. If there is increased trust, it would result from the enhanced public involvement assumed in these alternatives. Whether or not FORUMS 2 or 3 would result in more trust, because someone other than the three operating agencies is involved in developing a recommendation, is somewhat uncertain. For those who currently mistrust the three operating agencies, some greater trust might result. Those who trust the three operating agencies might experience a loss of trust if another entity was given the task of developing a recommendation.

Under FORUMS 6 and 7, a single existing federal agency would make the decision, and the different groups would have different levels of trust based on the degree to which they were confident the agency was supportive of their aims.

FORUM 4 acknowledges that with the addition of decisions about actions under the Endangered Species Act, there are in fact five decisionmaking agencies. Possibly the acknowledgment of that fact, and the inclusions of all five agencies at the same table, could result in improved trust. The same argument could be made that FORUM 5 (Decisionmaking by a new entity) might result in somewhat higher trust, since all uses

would be represented at the table. Even that conclusion rests, however, on the assumption that the Congressional process that leads to establishment of the new entity is credible, and the representation on the decisionmaking entity is perceived as equitable.

5.2.4 Criterion: Equitable Treatment Of All Uses

Depending on the representation of the decisionmaking body, FORUM 5 may be perceived as more equitable than any of the other alternatives, except by those users who have a traditional relationship with the SOR lead agencies and would prefer to see things left as they are. FORUMS 2, 3 and 4 may be perceived as more equitable than FORUM 1, because entities other than the three operating agencies would be involved in developing a recommendation. There is no basis for assuming that either FORUMS 6 or 7 would offer more equitable treatment than FORUMS 1 through 3.

5.2.5 Criterion: Accountability

This criterion has to do with whether it is clear who is politically and legally responsible for decisions made by the Forum. FORUMS 5, 6, and 7 could result in increased accountability if the Congressional authorization transferring power to the single decisionmaking entity makes a clear transfer of accountability from the other agencies to the chosen agency. It is possible to forecast a situation, though, where Congress transfers some part of the authority to one agency, but not all of it, leaving the situation even more confused.

FORUMS 1 through 3 (three agency decisionmaking) do result in somewhat divided accountability -- in theory there is always going to be somewhat clearer accountability

when there's only one decision maker, not three. However, the authorities of the three agencies have been long established, and challenged sufficiently in the Courts, that accountability is reasonably well defined. FORUM 4 also has multiple decision makers, and conceivably there could be legal challenges to the ESA agencies working in a cooperative manner with the SOR agencies. FORUMS 5, 6, and 7 could lead to a period of time during which their legal accountability is tested in the Courts.

5.2.6 Criterion: Cost To Implement - To Get In Place

FORUM 1 is essentially the existing situation, with enhanced public involvement, so there are few costs to put it in place. FORUMS 2 and 3 would also be within the power of the agencies to implement, although these alternatives would conceivably require getting Secretarial and OMB approval under the Federal Advisory Committee Act. Executive Order 12838, issued February 10, 1993, sharply restricts the ability to get this approval. As a result, FORUMS 2 and 3 might require Congressional authorization. FORUM 4 would not require either Congressional approval or Federal Advisory Committee Act approval (although the task force described in the illustration example might require approval). FORUMS 5 through 7 would require Congressional authorization. Congressional authorization is not only a time-consuming and expensive process, but the resulting legislation could include provisions that would be unacceptable to the Region.

5.2.7 Criterion: Cost To Implement - Annual Operation

A genuine consolidation of decisionmaking under FORUMS 5, 6, and 7 could result in a reduction in annual operating costs. However, if a new entity is created (FORUM 6) or a transfer of decisionmaking authority (FORUMS 6 and 7) is made without a clear reduction in the authority of the other federal agencies, annual implementation costs could be increased, as an additional layer of decisionmaking would be added. There would also be added costs for any new entity to develop the staff capability that currently resides in the SOR agencies. By consolidating the SOR and ESA decisionmaking processes, and utilizing the same data gathering process, FORUM 4 should result in reduced costs compared to the existing situation, although possibly less of a reduction than under FORUMS 5, 6, and 7.

FORUM 1 would result in somewhat increased costs to conduct a public involvement program. Presumably, under FORUMS 2 and 3, the SOR lead agencies would reimburse either the existing agency or the new entity for its work in developing a recommendation. This would mean some additional cost.

5.2.8 Criterion: Cost To Participate

Costs to participate (for non-SOR agencies or the public) could be reduced if FORUMS 6 and 7 result in a consolidation of the decisionmaking process. FORUM 4 might result in reduced costs to participate if groups are currently participating in two separate processes, one for SOR and one for ESA decisionmaking. FORUM 5 might result in higher costs to participate if parties are expected to provide representation or staffing for the new entity. FORUM 1 probably does not result in a significant difference in cost to participate, although a highly visible public involvement program might reduce

Table 4. Summary Comparison of Forum Alternatives

Evaluation Criteria:	FORUM 1: Enhanced Public Involvement	FORUM 2: Existing Entity	FORUM 3: New Entity	FORUM 4: Federal Consultation Forum
Consolidates Decisionmaking	no change	little change; may add one additional point for influencing decision	little change; may add one additional point for influencing decision	improved - consolidates to one process
Reduces Legal/Political Challenges	no change if challenge is based on content; may improve credibility through a more open process	no change if challenge is based on content; may improve if entity is perceived as neutral	no change if challenge is based on content; may improve if entity is perceived as neutral	no change if challenge is based on content; may improve due to consolidation
Trust	greater trust for those aligned with traditional interests	improved for those who are suspicious of SOR lead agencies	improved for those who are suspicious of SOR lead agencies	improved by bringing river uses to decision table
Equitable Treatment of All Uses	no change	no change or slight improvement if entity represents all uses	more equitable because all interests represented	more equitable
Accountability	no change	could improve political accountability; might allow decision makers to "hide" behind entity's recommendations	could improve political accountability; might allow decision makers to "hide" behind entity's recommendations	no change to slight improvement
Cost to Implement - To Get in Place	no change	require memorandum of understanding and/or Federal Advisory Committee Act authorization	requires agreement on membership, Congressional approval and Federal Advisory Committee Act authorization	requires agreement on consultation process
Cost to Implement - Annual Operation	slight increase	slight increase to cover new activities	increase to cover new activities	slight decrease due to consolidation
Cost to Participate	no change	somewhat higher to influence recommendations and decisions	somewhat higher to influence recommendations and decisions	slight decrease

Table 4 (con't). Summary Comparison of Forum Alternatives

Evaluation Criteria:	FORUM 5: Decisions by New Entity	FORUM 6: Single Operating Agency	FORUM 7: Other Federal Agency
Consolidates Decisionmaking	improves - consolidates decisions into one entity	improves - consolidates decisions into one entity	improves - consolidates decisions into one entity
Reduces Legal/Political Challenges	uncertain - improvement with all parties at the table or no change other than who sues who	number of decisionmakers reduced but may result in little or no change	number of decisionmakers reduced but may result in little or no change
Trust	significant improvement if all uses at table; may fail depending on how it is set up	possible improvement if individual interests are aligned with selected agency	possible improvement if individual interests are aligned with selected agency
Equitable Treatment of All Uses	more equitable	no change	no change
Accountability	increased, but may be confused; may be difficult to confer on new entity legal accountability	increased, but may be confused depending on set up	increased, but may be confused depending on set up
Cost to Implement - To Get in Place	requires Congressional authorization	requires Congressional authorization	requires Congressional authorization
Cost to Implement - Annual Operation	reduced if decisionmaking is consolidated; increased if no clear authority given	reduced if decisionmaking is consolidated; increased if no clear transfer in authority given	reduced if decisionmaking is consolidated; increased if no clear transfer in authority given
Cost to Participate	increase for representation	reduced if decisionmaking is consolidated	reduced if decisionmaking is consolidated

Table 5. Summary of the Evaluation of Forum Alternatives

Evaluation Criteria:	FORUM 1	FORUM 2	FORUM 3	FORUM 4	FORUM 5	FORUM 6	FORUM 7
Consolidates Decisionmaking	0	0 or +	0 or +	+	+	+	+
Reduces Legal/Political Challenges	0 or +	0 or +	0 or +	0 or +	0 or +	0 or +	0 or +
Trust	0	++	++	++	+++	+	+
Equitable Treatment of All Uses	0	0 or +	++	++	++	0	0
Accountability	0	+ or -	+ or -	0 or +	+	+	+
Cost to Implement - To Get in Place	0	-	--	-	--	--	--
Cost to Implement - Annual Operation	-	-	--	+	- or +	- or +	- or +
Cost to Participate	0	-	-	+	--	+	+

KEY: better (+), worse (-), neutral or no change (0)

costs, because the process for attempting to influence the decision would be better understood. FORUMS 2 and 3 may actually result in somewhat higher costs to participate, because parties would probably want to attempt to influence both the recommendations and the final decision.

5.3 COMPARISON BY ALTERNATIVE

Based on the analysis above, a brief discussion of the strength/ weaknesses of each of the alternatives is presented below. The information presented is identical to that provided above except it is organized by alternatives rather than by objectives.

5.3.1 FORUM 1: Decisionmaking by the SOR lead agencies + a complete public involvement program.

The primary strength of this alternative is that it that there are few costs to implement it. The three operating agencies could simply decide to do implement this alternative at any time. This alternative does not consolidate decisionmaking. It may reduce legal/political challenges to decisions to the extent those challenges are based upon the absence of a visible decisionmaking process. If legal challenges are instead based on substantive decisions, then this alternative would not reduce challenges, and could actually increase them. An enhanced public involvement process might result in somewhat increased trust and might increase the perception that all uses were treated equitably. It probably does not materially improve accountability (although it does create visibility for the decisionmaking process) nor alter the costs to participate. It would represent an increase in cost over the existing condition, but would be less costly than having a recommendation developed by an other entity.

5.3.2 FORUM 2: Decisionmaking by the SOR lead agencies + recommendation by an existing regional entity.

The primary strengths of this option are that it might result in somewhat increased trust and perception of equitable treatment than FORUM 1; it might result in reduced legal or political challenges; yet is still within the authority of the agencies to implement without Congressional authorization. This alternative does not alter accountability (although it increases visibility). Costs to participate might go up somewhat, since interests may feel obliged to participate both with the recommending agency and with the three operating agencies. Cost to operate would be somewhat greater than FORUM 1, somewhat less than FORUM 3 (because a new agency structure would not have to be created).

5.3.3 FORUM 3: Decisionmaking by the SOR lead agencies + recommendation by a new entity.

The analysis for this alternative is similar to that for FORUM 2 except that a recommendation developed by a new entity created for this explicit purpose might have greater credibility (trust, equitable treatment, reduction of legal/political challenges). On the other hand, the costs both to create and operate a new entity would be somewhat higher than in FORUM 2.

5.3.4 FORUM 4: Decisionmaking by a Federal Consultation Forum + a complete public involvement program.

One of the advantages of FORUM 4 is that it can, like FORUM 1, be implemented without Congressional Authorization or Federal Advisory Committee Act authorization. It could result in somewhat reduced costs to participate if it results in a joint SOR/ESA decisionmaking process, rather than two separate processes. There will be costs associated with the initial negotiations between the agencies to develop agreement on the consultation process between them, although these would be relatively modest compared to the start-up costs of a new entity. Trust and credibility might be increased somewhat over the existing situation, and over FORUM 1, because the ESA agencies would be at the table with the SOR agencies. The downside could be difficulties between the five agencies in arriving at a decision, although the potential for that problem already exists.

5.3.5 FORUM 5: Decisionmaking by a New Entity + a complete public involvement program.

Because this new entity would be created specifically to ensure representation of all the interests, it would conceivably have the highest credibility (trust, equitable treatment, reduction of legal/political challenges) of all the alternatives. However it would require Congressional authorization, and it would create the highest costs to operate because it would require creating a permanent new entity.

5.3.6 FORUM 6: Decisionmaking by one Federal operating agency (e.g. Corps or Reclamation) + a complete public involvement program.

This option would have the advantage of consolidating decisionmaking, and it would not require creation of a new bureaucracy. It might also reduce total costs. However, it would require Congressional authorization. There is little reason to believe it would materially affect credibility (trust, equitable treatment, legal/political challenges).

5.3.7 FORUM 7: Decisionmaking by another Federal agency (e.g. NMFS) + a complete public involvement program.

The analysis for this option is similar to that for FORUM 5. Since the other Federal agency to which decisionmaking would be transferred would, presumably, be an agency which has a major mandate for fish and wildlife, groups concerned about fish and wildlife might view this option as more credible than FORUM 5. However, groups with a traditional relationship to the existing operating agencies might view this option as having considerably less credibility. There might be somewhat greater costs in transferring decisionmaking to an agency other than one of the existing operating agencies.

5.4 PREFERRED ALTERNATIVE

The three SOR agencies (BPA, Bureau, Corps) have not selected a preferred alternative. The agencies have concluded that decisions regarding annual operating plans or making future changes to the system operating strategy (SOS) do require a clearly defined decisionmaking process that provides opportunities for regional participation

in the decision. This means that the agencies are predisposed to pick one of the Forum alternatives in preference to the existing condition.

It should also be noted that the three agencies are not able to implement Alternatives 5-7 on their own authority. These three alternatives require Congressional action to allocate decisionmaking authority to the appropriate agency. However, the three agencies could initiate a recommendation to the Administration and Congress that such a change be made.

The agencies may choose to use one of the Forum Alternatives to assist with making the upcoming selection of a System Operating Strategy. The purpose of this would be to increase openness and Regional participation in that decision. However, the agencies may choose to use a means of obtaining Regional participation in the System Operating System decision different from the Forum alternative finally selected. In other words, the use of one of the Forum alternatives for the System Operating Strategy decision would not prejudice the final selection of the Regional Forum for subsequent decisions.

**EXHIBIT I
LIST OF PREPARERS**

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EXHIBIT II
DESCRIPTIONS OF OTHER FORUMS FROM AROUND THE COUNTRY

A brief description of each of these entities is provided below:

Association of Bay Area Governments (ABAG)

Person Interviewed: Jose Rodriguez, ABAG staff

ABAG was set-up as a Joint Powers Agreement by the cities and counties in the San Francisco Bay Area. Each city and county selects a representative to serve on the Board of Directors, which in turn selects a Director, who selects the staff. Membership and payment of membership fees is voluntary. ABAG has little statutory authority. Basically ABAG is a regional planning entity that advises the cities and counties, although the cities and counties retain the actual permitting authority.

The only thing that has given ABAG – and most regional planning authorities – any significant statutory authority is that several Federal agencies, under Federal law, delegate responsibilities to the regional planning entity. This applies to water quality planning, air quality planning, and transportation planning. ABAG does not have all these authorities, because there are separate regional air quality and transportation agencies, but many regional planning agencies have these authorities and they give them considerable clout. ABAG does review all applications from cities and counties to HUD, to ensure consistency with the Regional Plan. While this is Advisory to HUD, HUD consistently turns down applications that are inconsistent with the Regional Plan.

Chesapeake Bay Program

Person Interviewed: Ed Stilgall, Assistant Director

The Chesapeake Bay Program is headed by an Executive Committee consisting of the EPA Administrator, the Governors of the 3 affected states, the Mayor of the District of Columbia, and the Chair of the Chesapeake Bay Commission [more on the Commission in a moment]. This Executive Committee has high enough status that the members of the group vie to be Chair. Its role is policy development.

The day-to-day management of the program is provided by an Implementation Committee. This Committee is Chaired by the Director of the Chesapeake Bay program, an EPA employee. Other members include representatives of the 11 Federal agencies and the three states. Each of the participating agencies provides dedicated staff from their agency who are physically located at the Chesapeake Bay Program.

There is also a series of subcommittees, one for each program area. For example, there is a subcommittee that oversees the monitoring program, another for the living resources (wildlife habitat) program, and another for non-point sources.

But the real success of the program comes from the fact that the states have also established the Chesapeake Bay Commission. The Commission has statutory authority in each of the legislatures. Each state appoints 4

members to the Commission and contributes \$100,000 for staff. The reason the Commission is crucial is that it can bring about legislative implementation of the program. By the time the Program and the Commission are in agreement on legislation needed for implementation, it takes the legislature only a few months to pass it. As far as known, this is the only one of these regional programs where there is a parallel legislative structure, and this is credited with much of the success of this program.

There is a very substantial public participation and public outreach program. There is a continuous series of workshops and seminars. A recent seminar drew 900 people!

The outreach program is primarily implemented by Federal staff, but there is an oversight group in which the public relations people for each of the three Governors play a key role. The public relations person for the Chair of the Executive Committee, for example, reviews all press releases issued by the program.

Gulf Of Mexico Program

Person Interviewed: Laura Radde, EPA/Program staff

This program is responsible for developing and administering EPA's cleanup and protection plan for the Gulf of Mexico. EPA is the lead agency, but there are five states involved and numerous state and Federal agencies that have an interest and a role in implementation. Until now the

Gulf of Mexico Program has been primarily a planning effort, but it is just now moving into implementation.

The Program is headed by a Policy Board that consists of executive-level representation from the Federal agencies, a single representative from each of the five Gulf states, and the Chair of the citizen's committee (a citizen). The state representatives are appointed by the Governors, with the concurrence of the EPA Regional Administrators.

The actual operations of the Program are directed by a Management Committee, whose membership echoes the Policy Committee. The Program Director and Deputy Director are EPA staff. The other Federal and state agencies provide full-time staff who are physically located in the Program Office. As the program moves into implementation, these staff are being upgraded to Associate Director status in the hope that this will aide commitment to implementation.

There are also 10 technical committees, each reflecting one of the 10 program priorities. These committees include technical staff from the agencies, as well as representatives from industry, environmental groups, etc. They tried to have a single representative for each state, but found that multiple agencies within each staff felt they had to have representation. At the same time, there have also been complaints that the committee structure creates a substantial burden on the agency and groups which want to participate. The Program finds that there has to be a periodic rejuvenation of the technical committees, part of which is to

remind them of their purpose. There is a Technical Steering Group which coordinates the activities of the technical committees.

There is also a Citizens Advisory Committee. Each state has five representatives on the committee, and each represents a constituency, e.g. agriculture, tourism, environmental, industry, etc. They are appointed by the Governors.

In the final analysis, decisions are made by EPA Headquarters. The Program does not have a Congressional mandate, although there are some bills in the hopper that may change that. The Policy Review Board is set up under the Federal Advisory Committee Act, although that was an afterthought.

The way they ensure that EPA does not get crossways with the Policy Group is that there are key EPA staff at all levels of the structure, so that EPA management is never taken by surprise. The issues usually get resolved before EPA management and the Policy Board get at cross purposes. [While this has worked with the Gulf of Mexico Program, it apparently hasn't worked as well in some other EPA Programs.]

One of the keys to success is a considerable effort to keep everybody informed. With all the various committee members and staff there are 450 people who play some role in the structure. There is an electronic bulletin board that can be accessed by anyone with a computer and a modem. There is also a bi-weekly bulletin to everybody in the program, as well as a regular newsletter.

Puget Sound Water Quality Authority

Person Interviewed: Nancy McKay, Executive Director

The Puget Sound Water Quality Authority is actually an outgrowth of an advisory committee that was set up to comment on issues related to water quality in Puget Sound. The 1985, the state legislature formally established the Puget Sound Water Authority, granting it authority to be the planning entity for Puget Sound water quality issues.

The board of the authority consists of nine members: the Director of the Washington Department of Ecology, the Director of the State Lands Commission, and seven citizens, one from each of the Congressional districts touching the Sound.

The basic responsibility of the agency is to develop a water quality plan and revise it every two years. It also comments on major activities by any of the local governmental entities that could have an impact on the Sound. It is also required to submit a periodic report to the legislature, and this has provided an important vehicle for recommending needed legislation and for getting media attention on important issues.

Several years ago the Authority was realigned slightly, and the Director of the Department of Ecology is now automatically the Chair of the Authority. There are those who support this arrangement and others who question it. Those who support it note that about 50% of the Authority's

implementation requires action by the Department of Ecology. Before the Director of Ecology was the Chair, Ecology would send a mid-level manager. Now the Director attends in person and there is much higher commitment to implementation. Those who don't like the arrangement claim that it makes it difficult for the Authority to comment critically on Ecology's actions, even though that may be important to the success of the program.

There is confusion about whether the Authority's plan is mandatory: some parts of the statute seem to say one thing, one another. So the Authority's real work is to persuade others to implement its program. The Authority has been successful in getting the legislature to commit \$45,000,000 of cigarette tax money to be used exclusively for water quality programs. \$1,000,000 of cigarette tax money is available for funding local entities to engage in public involvement activities.

There is a massive public involvement program. There is one public involvement person assigned to each of the twelve counties, with each of these people responsible for building relationships with the stakeholders in those counties and being on top of issues in the counties that could affect water quality. Other staff are assigned by constituency. The staff have found from experience that state-wide organizations do not necessarily represent the sentiments of the members. There are also advisory groups covering numerous topics.

The current staff consists of 25 full-time employee plus some contractors. Staff levels have been as high as 35 in the past.

Ohio River Commission

Source of Information: E.A. Joering, *The Ohio River Basin Commission: How to Manage a River Basin Without Threatening or Expanding Existing Authorities*, American Water Resources Association [get proper reference], May 1980.

The Ohio River Basin includes eleven states (Illinois, Indiana, Kentucky, Maryland, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia). There are ten Federal agencies with responsibilities that involve them in decisionmaking related to the basin (Agriculture, Army, Commerce, Energy, Environmental Protection Agency, Federal Emergency Management Agency, Health and Human Services, Housing and Urban Development, Interior, Transportation). There is also an interstate entity, the Ohio River Valley Water Sanitation Commission (ORANSCO) that oversees much of the effort to abate municipal and industrial pollution along the river.

The present Commission is an outgrowth of a comprehensive study, begun in 1962, which was overseen by a coordinating committee chaired by the Corps of Engineers. This \$5,000,000 study assessed the problems existing and anticipated through the year 2020 and identified potential solutions. One of the conclusions of this study was that a permanent organization should be formed that would allow committee members to work together in a coordinated fashion to plan for the use of the basin's water and related land resources. The Ohio River Basin Commission was

established in 1971 under Title II of the Water Resources Planning Act of 1965. The Commission: (1) coordinates all the water and related land plans in the basin whether Federal, state, local, or private; (2) prepares a plan of development for the use of the resources, and (3) recommends priorities for implementation.

The state members of the Commission are appointed by the Governors of each state, while the Federal members are appointed by the Secretaries of each Federal department. Typically the head of natural resources in each state represents that state, and the regional director of each Federal agency represents that state. A member of ORANSCO, the interstate group, also sits on the Commission Board. The Commission is chaired by a Presidential Appointee. A small technical staff is employed by the Commission. A Citizen Advisory Council with more than 120 members also advises the Board. Commission funds come from assessments of each state, matched by Federal dollars. At the time the article referenced above was written, 2.5 Federal dollars were put in for every state dollar.

One of the unique features of this Commission is that the authorizing legislation requires that recommendations of the Commission be made by "consensus." The interpretation of "consensus" agreed to by the Commission is that no member formally objects to the recommendation. Since much of the impact of the Commission rests upon voluntary implementation or the political credibility of Commission recommendations, this consensus rule appears to be workable.

STATEMENT OF J. GARY SMITH

Mr. SMITH. Thank you, Congressman DeFazio, Congressman LaRocco.

Mr. DEFAZIO. Before you begin, Mr. Smith, I am sure it is not your fault, but you are one of the two agencies whose testimony I have not had the opportunity to read because it was not provided in a timely manner.

Mr. SMITH. I apologize, Congressman, I received my copy at five o'clock last night myself.

Mr. DEFAZIO. I understand you are representing higher powers, but I will try and send a message to your higher powers. In fact, I envision a system, if we can do what Mr. Webb says and get some permanent extension of authority, or at least longer extension of authority where in the future I am going to insist on testimony being available. There are a lot of people who want to testify, and what I will do is establish a waiting list and anyone that does not meet the deadline will get bumped, and we will put the person on the waiting list next first up.

But anyway, go ahead.

Mr. SMITH. Again, I apologize.

I am Gary Smith, Director of Regional Operations for the National Marine Fisheries Service. I do appreciate the opportunity to speak today on the Council's planning process for recovery.

The Northwest Power Planning Council's *Strategy for Salmon* is an effective framework to achieve recovery for salmon and steelhead. NMFS' Snake River recovery team has worked closely with the Council in the preparation of our plans for listed salmon in the Snake River and the broader context of the Council's responsibility. We intend to have close coordination between National Marine Fisheries Service and the Council in the implementation of our respective plans.

The real strength of the Council's plan is it is a product of a regional effort motivated by the commitment of the Governors and the congressional delegation. It reflects the interest of States and provides a strong voice for the States in their dealings with the Federal Government in the recovery process. Because of the Council's regional grounding and because of the Council's broad public process, the *Strategy for Salmon* enjoys a high degree of regional visibility and acceptance.

The Council has influenced the recovery of salmon in the basin, particularly in the area of providing additional water budgets to promote recovery of salmon.

An important strength of the Council's program is its responsibility to cover all anadromous species and resident fish and wildlife in the Columbia basin, not just species listed under the Endangered Species Act. This broad responsibility provides a unique opportunity to implement an ecosystem approach which will achieve a balance between protection and enhancement of all fish and wildlife needs in the basin rather than single-species orientation under the Endangered Species Act. Early implementation of all phases of the *Strategy for Salmon* is critical to avoiding any further listings of fish and wildlife under the Act. This is an important perspective that we need to keep in view. We clearly feel that the Endangered

Species Act should be the court of last resort for salmon restoration.

Stable funding for the Council's program is critical to the success of the program and essential for securing the commitment of the regional partners for accomplishing priority salmon rebuilding tasks in a timely way. This is particularly crucial if the overall Council strategy to protect and rebuild the basin's fish and wildlife populations to a level that will preclude any further listings.

We are very pleased to learn of BPA's willingness to invest in the resource agencies to achieve the biological objectives and priorities for the restoration process.

NMFS believes that adequate flows and improvements in fish passage are vital to the survival of Columbia Basin salmon and steelhead. We believe the conflict between the timing of power needs and those for migrating salmon must be resolved by adjustments in the hydropower operations. Certainly the natural run time for salmon cannot be modified.

NMFS is also committed to working with the Corps of Engineers toward the earliest feasible implementation of biological testing of drawdown for Snake River reservoirs. Drawdown remains an alternative for improving in-stream passage conditions that must be developed and evaluated to determine its feasibility.

Water management coordination throughout the Columbia Basin is fragmented under different state and federal authorities. NMFS appreciates the efforts of the Council to increase the amount of water available to fish and wildlife in the region and its efforts to oversee through the Fish Operations Executive Committee, the coordination of available water. This task, however, requires a longer-term solution. Water demands for proposed and listed species, such as salmon, snails, eagles, bull trout, sturgeon and other resident fish and wildlife, and the competing demands for transportation, irrigation, recreation and power in the basin strain the already over-allocated water resources of the region.

The region needs a coordinated process to ensure the entire river system is operated to meet the needs of both the ecosystem as well as the river users while working within water availability boundaries established by variable run-off conditions.

Early implementation, such as the alternatives considered in the Systems Operation Review that addressed the ecosystem needs of all species and the needs of river users, provides a unique opportunity to implement a comprehensive and coordinated water management regime for the region.

NMFS believes that incorporating salmon recovery measures in the Pacific Northwest Coordinating Agreement, called PNCA, is an extremely important issue, because development and operation of storage and run-off, run-of-the river projects, which is planned through the PNCA is a most significant factor affecting salmon populations in the Columbia basin. Incorporating fishery flow requirements in the planning process would improve the system's ability to consistently meet flow requirements. We fully support the inclusion of flow and other fish requirements in the PNCA process.

Finally, your letter requested that we address the differences between NMFS and the tribes over artificial propagation. There has been much confusion over the role of hatcheries under the ESA.

NMFS has published an interim artificial propagation policy to guide us in meeting ESA requirements. Our policy is designed to define the role of hatcheries while maintaining and restoring listed populations in their native ecosystems. Accordingly, our policy distinguishes between hatcheries used for conservation of listed species—the rebuilding process—and hatcheries used to produce salmon for harvest, as mitigation for habitat lost through land development.

NMFS is completing a review of the interim policy with the U.S. Fish and Wildlife Service and tribes before any final decision is made on the future of that policy.

Many hatchery issues can be resolved through careful selection of release sites and other locations. We are prepared to work with the tribes to identify those kinds of locations.

In conclusion then, salmon restoration in the Columbia basin is at a critical turning point. We either make the *Strategy for Salmon* work or face additional ESA listings, litigation and gridlock. Crisis management under ESA is not the answer. We believe the regional entities can and are able to build a regional coalition around the *Strategy for Salmon* to achieve salmon restoration in a timely manner. FOEC has been suggested; there may be others. To do this, we must not use science as an excuse, we must be willing to err on the side of the fish in view of scientific uncertainty and avoid waiting for results of prolonged studies before taking action.

We must act with the best available science and improve as we go forward. We must be willing to risk on the side of the fish.

Mr. DEFAZIO. Thank you, that's a very good point.

Mr. Van Pelt.

[Prepared statement of Mr. Smith follows:]

FINAL

**TESTIMONY
MR. J. GARY SMITH
NORTHWEST REGIONAL OPERATIONS DIRECTOR
NATIONAL MARINE FISHERIES SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE**

**BEFORE THE
BONNEVILLE POWER ADMINISTRATION TASK FORCE
OF THE
COMMITTEE ON NATURAL RESOURCES
U.S. HOUSE OF REPRESENTATIVES
BOISE, IDAHO**

SEPTEMBER 24, 1993

Mr. Chairman and Members of the Committee:

I am Gary Smith, Director of Regional Operations, Northwest ..
Region, National Marine Fisheries Service (NMFS), National
Oceanic and Atmospheric Administration, U.S. Department of
Commerce. I appreciate the opportunity to participate in this
hearing to provide NMFS' comments on the Northwest Power Planning
Council's (Council) Strategy for Salmon and the Bonneville Power
Administration's (BPA) funding of that program.

Your invitation to participate in these hearings requested that
we address a number of specific questions related to recovery of
salmon stocks in the Columbia River Basin. The questions you
posed seek to determine whether appropriate measures are being
proposed or undertaken to protect, mitigate, and enhance salmon
populations affected by federal hydroelectric facilities on the
Columbia River and its tributaries, and whether existing
institutions and institutional arrangements are adequately
implementing those measures.

The Northwest Power Planning Council's Strategy for Salmon is an appropriate framework to achieve the recovery of salmon and steelhead in the Columbia Basin. Following the initial efforts of Senator Hatfield's Salmon Summit process, the NMFS joined the Northwest congressional delegation and Governors in urging the Council to assume a leadership role in the development of a broad-based plan for the restoration of salmon stocks affected by the development and operation of the Federal Columbia River Power System. We have worked closely with the Council in this effort as we prepare a salmon recovery plan for Snake River sockeye and chinook salmon listed under the Endangered Species Act (ESA). We fully intend close coordination between NMFS and the Council in the implementation of our respective plans.

NMFS' appointed recovery team expects to distribute a peer review draft of proposed Snake River salmon recovery measures in October. The recovery team will be seeking comments from scientific and technical reviewers from State, Federal, tribal, academic and private entities who provided information and data to the team. The Council certainly will be one of these reviewers who contributed to the team. After the team has had an opportunity to consider reviewer comments, the team will submit recommended measures to NMFS. NMFS will then submit a proposed recovery plan for public comment as required by the ESA. Following receipt of those comments, NMFS will then adopt a final recovery plan. We expect the final recovery plan to be adopted

and implemented early in 1994.

I will now proceed with our response to the questions raised by the Task Force.

On the strengths of the Council's plan -- Probably the most important strength of the Council's plan is that it is the product of a regional effort motivated by the commitment of the Northwest Governors and the Northwest Congressional delegation. It reflects the interests of the states and provides a strong voice for the states in their dealings with federal programs in the salmon recovery process. Because of the Council's regional grounding, and because of the Council's broad public process, the Strategy for Salmon enjoys a high degree of regional visibility and acceptance.

Since its creation by the 1980 Northwest Power Act, the Council has achieved important gains for salmon. The Council played a key role in obtaining appropriations for the Corps of Engineers to install essential bypass improvements for most Columbia and Snake River dams. Council influence was critical in securing a water budget that provided flow augmentation for migrating salmon through some of the most difficult drought years in the region. Although NMFS believes the present water budget may not be adequate to provide sufficient flows for fish needs, it was an important first step in gaining additional water to improve

salmon survival. The Council's adoption of spring flow targets as part of its program represented a further evolution in regional acceptance of the need for flow augmentation. On harvest, Council efforts during the post-Salmon Summit process resulted in regional agreement to reduce harvest impacts on Snake River fall chinook. There are many, many examples one could cite of Council efforts or the program achievements leading to important contributions to the rebuilding of Columbia Basin salmon and steelhead populations.

Another important strength of the Council's program is its responsibility to cover all anadromous species and resident fish and wildlife, in the Columbia Basin, not just those listed under the ESA. This broad responsibility provides a unique opportunity to implement an ecosystem approach which can achieve a balance between protection and enhancement of all fish and wildlife needs of the Basin, rather than the single species focus under the ESA. The early implementation of all phases of the Strategy for Salmon is critical to avoiding the need for any further listings of fish and wildlife under the ESA.

On the weaknesses of the Council's plan -- The regional character of the Council, with its multi-state, multi-interest composition, also points to one of the weaknesses of the Council's program. Achieving consensus among the states, tribes, Federal agencies and the public in the Council process often leads to compromise

solutions that do not always fully serve the immediate biological priorities of the salmon. Our ESA experience has demonstrated that while much is known about the biology of salmon, gaps in knowledge remain. In moving to restore salmon stocks in the Basin, we must err on the side of fish rather than on the side of the unknown through a compromise that may result in costly delays in the recovery.

NMFS believes this instruction already exists in the Northwest Power Act which establishes a standard of "equitable treatment" ., for fish and wildlife with other project purposes. We believe this standard is sufficient to ensure compromise on the side of fish.

Limited authority and enforcement capability of the Council is another weakness that has inhibited the timely implementation of the program. There appears to be no clear process for assuring accountability on the part of the various State and Federal authorities to ensure timely implementation of the action items in the program. Actions related to habitat, hatcheries and harvest are carried out by Federal and State agencies under their own respective statutes. NMFS believes that better systematic coordination among implementing and funding entities could help improve program responsiveness. As with Federal hydrosystem actions, the lack of consequences for failure in the present system allows the respective entities to control the completion

of assigned tasks often results in delays in implementing important tasks. Until new institutional arrangements can be implemented such as those being considered in the System Operation Review or similar reviews, actions important to salmon survival, such as evaluations of land management practices, development of harvest management alternatives, the installation of juvenile fish bypass screens and other mainstem passage improvements, and the evaluation of drawdown alternatives for Snake River reservoirs are likely to continue serious delays.

On measures to stabilize funding -- Stable funding for the Council's fish and wildlife program is critical to the success of the program and essential to securing the commitments of the regional partners to accomplishing the priority salmon rebuilding tasks in a timely way. This is particularly crucial if the overall Council's strategy is to protect and rebuild the Basin's fish and wildlife populations to a level that will preclude further listings under the ESA.

NMFS believes that the present funding process for the Council's fish and wildlife program could be re-examined to consider alternatives that will assure adequate funding from all sources to allow program priorities and commitments to proceed in a timely and orderly way. NMFS also believes that effective planning, staffing, and implementation of the Council's program require firm funding commitments from the BPA and other Federal

and State sources. We believe that adequate funding of the Council's program now, and its success in precluding any additional listing in the Basin in the future, is far more cost effective than the costs of recovery for listing individual species under the ESA.

On flows for power production and salmon recovery -- NMFS believes adequate flows are essential to the survival of Columbia Basin salmon and steelhead. Columbia Basin salmon evolved in a river system with high annual spring run-off. The timing of the annual migration of juvenile salmon to the ocean coincides with the natural peak flow season. Development of the hydropower system has altered this regime, storing the high spring run-off for irrigation in the summer and power production in the winter. Public and industrial water conservation has some potential to contribute to flows for fish as do new innovative power marketing alternatives to make more water available at peak salmon migration times.

NMFS believes the conflict between the timing for power needs and those of migrating salmon must be resolved by adjustments in hydropower operations. Certainly, the natural run time of salmon cannot be modified. We understand that BPA recently has been exploring different marketing approaches and seasonal exchanges that would benefit fish. NMFS is encouraged by this willingness to look at marketing alternatives that will reward operations

that benefit fish. We urge the Council to follow up on these alternatives and give more consideration to alternatives to present power operations through power marketing.

In addition, the Council could consider several actions identified by NMFS during consultations on 1993 operations of the Federal Columbia River Power System that could be taken by BPA, the Bureau of Reclamation and the Corps of Engineers to improve flows for salmon. These included:

- Increase flow augmentation from federal projects above Brownlee by providing for the timely release and pass through of uncontracted storage without going through water banks. Where there are interspecies concerns, the timing of flows can be coordinated to provide improved habitat in the Snake River above Brownlee.
- Supplement direct use of uncontracted federal storage with purchase and transfer of natural flow irrigation water rights and leasing from irrigation water banks.
- Eliminate water banks' last-to-fill rule for water released to non-agricultural practices.
- Show progress toward measures to decrease irrigation depletions through improved efficiency and conservation.

Enact regulations that would facilitate allotting that water to instream flows.

NMFS also is committed to working with the Corps of Engineers toward the early implementation of the biological testing of drawdown of Snake River reservoirs. Drawdown remains an alternative for improving instream passage conditions that must be developed and evaluated to determine viability.

On existing institutions and institutional arrangements -- Some changes maybe necessary in existing institutions and institutional arrangements but NMFS believes that these changes can be made without significant modifications to the existing Council make-up or process. In NMFS opinion the most critical need for the Council to consider is an evaluation of new institutional arrangements that will provide improved coordination between the Federal, State, and tribal entities and greater accountability for implementing Council program tasks.

Water management coordination throughout the Columbia Basin remains fragmented under different State and Federal authorities. NMFS appreciates the efforts of the Council to increase the amount of water available to fish and wildlife in the region and it's efforts to oversee through the Fish Operations Executive Committee, the coordination of available water. This task, however, requires a longer term solution. The water demands for

proposed and listed species such as salmon, snails, eagles, bull trout, sturgeon and other resident fish and wildlife and the competing demands for transportation, irrigation, and power in the Basin strain the already over allocated water resources of the region.

The region needs a coordinated process to ensure the entire river system is operated to meet the needs of both the ecosystem as well as those of river users while working within water availability boundaries established by variable run-off conditions. NMFS participated in an in-season water management process during the 1993 spring and summer salmon migration for listed Snake River salmon with the Corps of Engineers, Bureau of Reclamation, and BPA. This process coordinated the weekly Snake and lower Columbia River flows as a term and condition of the section 7 process under the ESA. NMFS's recovery team has worked to identify river operation actions necessary for the recovery of listed Snake River salmon. These actions, while providing some benefits to non-listed salmonid species, also must accommodate the restoration of other salmonid and resident fish and wildlife species of concern in the Basin. NMFS was pleased to learn that BPA, Corps of Engineers and the Bureau of Reclamation agreed to consider a system flow and reservoir operations alternative developed by the U.S. Fish and Wildlife Service, working with states and tribes, in their Systems Operation Review that considers listed species and species of concern throughout the

Columbia Basin. Consideration of an alternative that addresses the ecosystem needs of all species and the needs of river users, provides a unique opportunity to implement a comprehensive and coordinated water management regime for the region.

You also asked us to address a number of specific proposals for better implementation of salmon recovery plans.

One option is to provide additional public involvement in existing federal processes, including review of annual operating plans. As already mentioned, the Council has a very open public process. NMFS has maintained an open process in the listing and in recovery planning. Under existing requirements, the section 7 consultation process is held between the Federal action agencies, plus any non-federal permit applicants there may be. It is not open to concurrent public review. NMFS does, however, encourage and consider any information volunteered by the public in its decision process. States and tribes are directly involved in hatchery operations and harvest, which provides them an opportunity to participate in the consultation process.

The hydrosystem consultation has not been open because it involves only Federal agencies. Corps of Engineers, Bureau of Reclamation, and BPA also provide opportunity for public comment in a number of ways primarily associated with their NEPA process. NMFS has encouraged BPA, the Corps and Bureau of Reclamation to

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consider more open participation in the ESA section 7 consultation process by soliciting input from interested parties prior to submission of their proposed action and biological assessment to NMFS. NMFS, for its part, has committed to coordinating with regional interests in the process of developing its biological opinion in response to the operating agencies' biological assessment.

With respect to Council membership, several observers have noted that the lack of tribal representation on the Council is a shortcoming. NMFS supports the inclusion of tribal representation on the Council.

As for qualifications of Council representatives, NMFS believes it is crucial for the Governors to appoint individuals who are knowledgeable in the area of natural resources.

Consideration for adopting a new agreement or creating a new regional entity among BPA, the Corps of Engineers, and the Bureau of Reclamation, the Council and others to administer annual river operations are within the range of alternatives in the System Operation Review. NMFS would encourage consideration of a Basin-wide coordinated process that would provide an open process and would provide considerations for all water entities and fish and wildlife in the Basin, not just those listed species under the ESA.

Incorporating salmon recovery measures into the Pacific Northwest Coordinating Agreement (PNCA) also is an extremely important issue because development and operation of the storage and run-of-river projects, which is planned through the PNCA, is the single most significant factor affecting the salmon populations of the Columbia Basin. The PNCA is a planning tool for hydropower production and allocation of coordinated hydropower resources. Although there is flexibility to purchase additional resources and supplement hydro with thermal resources, the annual regulation developed under the PNCA is clearly a driver for system operations. Incorporation of fishery flow requirements would improve the ability to consistently meet these requirements. It also would seem that planning to meet these requirements is the best way to minimize their affect on other system uses. NMFS fully supports the inclusion of flow and other fish requirements in the PNCA process.

NMFS believes that transferring a lump sum in fish and wildlife funds from BPA to fish and wildlife agencies (and presumably to tribes) could be separately administered by them with savings in overhead and coordination costs. It would, however, require flexibility of BPA to respond to changes in priorities of the Council's program. It also would not address the problem of compliance by federal agencies with the implementation of the Council's fish and wildlife program.

Finally, your letter asked that we address the differences between NMFS and the tribes over artificial production. There has been much confusion over the role of hatcheries under the ESA. NMFS has developed an interim artificial propagation policy to guide us in meeting ESA requirements. Our policy is designed to define the role of conservation and mitigation hatcheries while maintaining and restoring listed populations in their native ecosystems. Accordingly, our policy distinguishes between hatcheries used for the conservation of listed species and hatcheries used to produce salmon for harvest as mitigation for habitat lost through development. Conservation hatcheries are only needed for listed species in severe emergencies when the population hovers near extinction.

Hatcheries used for production and mitigation are an integral part of the Pacific Northwest and are vital to the abundance of salmon. NMFS recognizes we must use some hatcheries to support fisheries, especially when habitat no longer exists to maintain production. Yet even as we use production and mitigation hatcheries to promote harvest, we must minimize their impact on listed species. Some hatcheries in the past were a major reason for problems for wild populations. For example, the releases of fall chinook into the Umatilla River resulted in straying of these fish into the Snake River, where they crossed with wild salmon. The distinct Snake River populations were faced with the loss of their natural genetic material.

Many hatchery issues can be resolved through careful selection of release sites and terminal fishing areas. In an effort to meet tribal concerns about improved production above Bonneville Dam, NMFS reviewed the tribal proposal for supplementation and identified Yakima and Klichitat pilot projects that could proceed without being likely to adversely impact listed species. NMFS is simply unable to approve those projects that may have an adverse impact on listed species until we know more about those potential impacts.

In summary, the Strategy for Salmon is an effective restoration plan for the broad range of depressed salmon and steelhead stocks in the Columbia Basin. It has a broader mandate than the NMFS recovery plan for Snake River salmon listed under the ESA. As a result of close coordination between the Council and NMFS, we fully expect there to be important similarities in both plans. NMFS also believes effective implementation of the Council's program may require improvements in coordination among the various Federal, State, tribal and private interests and may require an improved budget process to ensure adequate funding for all phases of the program. NMFS also believes there are significant opportunities for the Council to work with Federal and non-federal hydropower entities to achieve improvements in regional water conservation and management throughout the Columbia River Basin.

Thank you for the invitation to testify today. I would be pleased to answer questions you may have.

STATEMENT OF ANTHONY VAN PELT

Mr. VAN PELT. Good morning, Mr. Chairman, members of the task force. Thank you for the opportunity to testify. I am Anthony Van Pelt. I am a member of the Umatilla Tribe's Fish and Wildlife Committee and a member of the Columbia River Inter-Tribal Fish Commission. In 1977, the Umatilla, Warm Springs, Yakima and Nez Perce Tribes formed the Commission. The Commission assists its member tribes with their gravel-to-gravel fisheries management.

Your hearing comes at a critical time in the history of the basin's salmon runs. At least nine lawsuits have been filed in the last 2 years challenging actions affecting the basin's salmon. At no time have the courts been faced with more complex issues regarding salmon management. Unfortunately, the lawsuits reflect the basin's failure to come to grips with basic resource management choices affecting salmon.

The task force has asked a series of detailed questions, to which I can only respond broadly today. In general, existing institutions are not adequately responding to the biological needs of salmon. Too much emphasis is placed on planning and political sensitivity. Too little emphasis is placed on getting the job done, which puts the salmon and those that depend on the salmon at risk.

The tribes have borne the burden of conserving the salmon resources by closing their fisheries. The tribes have not had commercial fisheries on spring chinook since 1977 and on summer chinook since 1964. The tribal fishery closures were not sufficient to stem the decline of spring and summer chinook. Since 1964, Lower Granite, Little Goose, Lower Monumental and John Day dams, to name only a few, were constructed and now impede salmon rebuilding. Yet it is all too easy to solely blame the dams for the salmon's decline. Poorly designed hatchery mitigation and bad land practices must be recognized for the enormous impacts they brought forth.

You have asked, Is the Power Council's *Strategy for Salmon* adequate? I answer "no." Only the week before last, the Yakima Nation asked the Ninth Circuit Court of Appeals to set aside the Council's *Strategy for Salmon* for violating the Northwest Power Act. Among other things, the Council wrongly rejected recommendations from the fishery managers for flows for fall chinook. Fundamentally, politics, not science, drove the Council's decision process. This is extremely frustrating for the tribes because both science and the letter of the law should be sufficient for recovery, whereas the *Strategy for Salmon* is not.

Even if the *Strategy for Salmon* were adequate, BPA's ability and willingness to implement these measures is in doubt. It is one thing to say that BPA has funded a project to address a Council measure. It is wholly different to say that such a project has been included and is producing salmon. For example, the Nez Perce and Yakima tribal hatcheries have been on BPA's drawing boards for more than a decade following the Council's 1982 fish program. They are still only plans. Nor has the BPA shown support for tribal cultural priorities, such as lamprey protection.

Thus, the Commission recently suggested that the Administrator eliminate BPA's fish and wildlife division and transfer its respon-

sibility for administering fish and wildlife funding to an entity whose central mission is stewardship of fish and wildlife, and which has formally demonstrated its trusteeship to the tribes. The process for moving the money "to the ground" must be simplified to reduce costly delays. The tribes and the region must have accountability for the investment of taxpayer and ratepayer funds. The best accountability measures are completed projects and increased salmon runs. Moving the funding duty to another agency also allows us to revisit the financing mechanisms for fish and wildlife investments. The Commission hopes to explore these issues with BPA in the near future.

You have also asked a number of questions related to the current system for managing operations of the Columbia basin's hydroelectric system. Let me say at the outset, the tribes are extremely frustrated with the way the BPA, the Corps and the Bureau of Reclamation have attempted to deal with these issues through the System Operation Review. These federal agencies just do not get it. They do not pay attention to tribal concerns at the outset and their belated attempts are inadequate. I question whether making BPA a government corporation would improve this situation. Therefore I respectfully ask this task force, Would BPA, as a government corporation, be subject to the Federal Government's trust obligation to the tribes?

When the United States and Canada entered into the Columbia River Treaty, salmon were not part of that bargain. Today, we are witnesses to failures to deal with the system as a whole. Letting BPA and the Corps represent the tribes' interest in Columbia River salmon to Canada makes us very uncomfortable. Likewise, letting the Bureau of Reclamation, Corps of Engineers, and BPA represent our interests in salmon to the region's utilities throughout the Pacific Northwest Coordination Agreement is unacceptable. Management of the Columbia basin's water resources must fully respect salmon needs and the tribes' interest in the salmon. The tribes are best able to represent their own interests and existing processes must be restructured accordingly.

In conclusion, I again thank you for the opportunity to address the task force. I welcome your attention to these important issues and look forward to addressing these matters with you in the future.

[Prepared statement of Mr. Van Pelt follows:]

HEARINGS BEFORE
THE U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON NATURAL RESOURCES

Testimony of the Columbia River Inter-
Tribal Fish Commission
September 24, 1993
Boise, Idaho

Good morning Mr. Chairman and members of the Committee. Thank you for the opportunity to testify. I am Anthony Van Pelt. I am a member of the Umatilla Tribe's Fish and Wildlife Committee and a member of the Columbia River Inter-Tribal Fish Commission. In 1977, the Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation of Oregon, the Confederated Tribes and Bands of the Yakima Indian Nation, and the Nez Perce Tribe formed the Commission. The Commission assists its member tribes with their gravel-to-gravel fisheries management.

Your hearing comes at a critical time in the history of the Basin's salmon runs. At least nine lawsuits have been filed in the last two years challenging actions affecting the Basin's salmon. At no time have the courts been faced with more complex issues regarding salmon management. Unfortunately, the lawsuits are a symptom of the Basin's reluctance to come to grips with basic resource management choices affecting the future of our salmon.

The Committee has asked a series of detailed questions, to which I can only respond broadly today. The Commission's written testimony will respond to each question in detail. In general, existing institutions are not adequately responding to the biological needs of salmon. Too much emphasis is placed on planning and political sensitivity. Too little emphasis is placed on getting the job done, which puts the salmon and those that depend on the salmon at risk.

The tribes' have borne the burden of conserving the salmon resources by closing their fisheries. The tribes have not had commercial fisheries on spring chinook since 1977 and on summer chinook since 1964. The tribal fishery closures have not been sufficient to stem the decline of spring and summer chinook. On the other hand, since 1964 Lower Granite, Little Goose, Lower Monumental, and John Day dams, to name only a few, were constructed, and now impede salmon rebuilding. Yet, it is all too easy to solely blame the dams for the salmon's decline. Poorly designed hatchery mitigation and bad land practices must be recognized for the enormous impacts they brought about.

You have asked, is the Power Council's Strategy for Salmon adequate? I answer, "no." Only the week before last, the Yakima Nation asked the Ninth Circuit Court of Appeals to set aside the Council's Strategy for Salmon for violating the Northwest Power Act. Among other things, the Council wrongly rejected recommendations from the fishery managers for flows for fall chinook. Fundamentally, politics, not science drove the Council's decision process. This is extremely frustrating for the tribes, because both science and the letter of the law should be

sufficient for recovery, whereas the Strategy for Salmon is not.

Even if the Strategy for Salmon were adequate, BPA's ability and willingness to implement the Council's measures lends little confidence for rebuilding salmon. It is one thing to say that BPA has funded a project addressing a Council measure. It is wholly different to say that such a project has produced fish benefits. For example, the Nez Perce and Yakima tribal hatcheries have been on BPA's drawing boards for more than a decade following the Council's 1982 fish program. They are still paper plans. BPA has not proven capable of implementing significant fish mitigation projects. Nor, has BPA shown support for tribal cultural priorities, such as lamprey protection.

Thus, the Commission recently suggested that the Administrator eliminate BPA's fish and wildlife division and transfer its responsibility for administering fish and wildlife funding to an entity whose central mission is stewardship of fish and wildlife, and which has formally demonstrated its trusteeship to the tribes. Simply moving these duties to another agency is not enough. The processes for moving the money "to the ground" must be simplified to reduce costly delays. The tribes and the region must have accountability for the investment of taxpayer and ratepayer funds. The best accountability measures are completed projects and increased salmon runs. Moving the funding duty to another agency also provides an opportunity to revisit the financing mechanisms for fish and wildlife investments. The Commission hopes to explore these issues with BPA in the near future.

You have also asked a number of questions related to the current system for managing operations of the Columbia Basin's hydroelectric system. Let me say at the outset, the tribes are extremely frustrated with the way BPA, the Corps, and the Bureau of Reclamation have attempted to deal with these issues through the System Operation Review. These federal agencies "just don't get it." They have paid only belated attention to tribal concerns. I wish these agencies would quit sending letters that imply that the tribes are involved in that process. I question whether making BPA a government corporation would improve this situation. I respectfully ask this Committee: Would BPA, as a government corporation, be subject to the federal government's trust obligation to the tribes?

When the United States and Canada entered into the Columbia River Treaty, salmon were not part of the bargain. Today, we are witnesses to failures to deal with the system as a whole. Letting BPA and the Corps represent the tribes' interest in Columbia River salmon to Canada makes us very uncomfortable. Likewise, letting the Bureau of Reclamation, Corps of Engineers, and BPA represent our interests in salmon to the region's utilities through the Pacific Northwest Coordination Agreement is unacceptable. Management of the Columbia Basin's water resources must fully respect salmon needs and the tribes' interest in the salmon. The tribes are best able to represent their own interests and existing processes must be restructured accordingly.

In conclusion, I again thank you for the opportunity to address the Committee. I wish I could say that the salmon's problems are solved, but I cannot. I welcome your attention to these important issues and look forward to addressing these matters with you in the future.

Mr. DEFazio. Thank you. I want to thank all the panelists for doing such a good job of staying within the allotted time, and we will move on to some questions.

Let us start first with an observation, General Harrell. I am concerned at the slippage in the time lines, particularly the John Day drawdown. I know the Corps has not had the experience perhaps of some other federal agencies in this region, but it seems to me that we are kind of skating with no jeopardy opinions and responding to the pending litigation, you know, instead of trying to get ahead dramatically of the Endangered Species Act curve. My observation is that you are just sort of teetering there. I mean all due deliberation or whatever is not necessarily going to protect us. And I would hate to see a situation where the operation of the dams under the auspices of the Corps goes to Mr. Smith's agency, but that could be well what a federal judge might decide.

So with that, I know that there is apparently a legal opinion that is being developed by the Corps regarding the John Day drawdown. I am not sure exactly what that legal opinion goes to, whether it goes to your authority to do the drawdown itself—I do not think that is in question—or whether it goes to some of the predicted impacts of that drawdown and potential obligations that the Corps might have to persons who would claim injury in a drawdown. Could you address what is going on with the legal opinion and is there a way to accelerate the time line for the John Day drawdown as specified by the Council?

General HARRELL. In a broader context let me first address biological drawdown testing. In April of last year, NMFS and the Corps jointly announced that there would be a joint initiative to conduct biological tests under the drawdown concept. And that was to determine whether a drawdown provides improved survival for the juveniles as a measure of recovery action. We stated that we thought that the test could occur as early as next year, and as we began to address and look at some of the activities requiring engineering logistics and other preparation for the EIS requirements, that began to slip. We continue to coordinate. In fact, I asked if we would be able to meet that target, since that date was announced back in April of last year and the region at least would expect us to do the test during 1994, despite the fact that we were having all of these difficulties in pulling the engineering logistics and environmental EIS together. It became apparent we would not make that target.

Currently, we are on a schedule to have a draft environmental impact statement available in February of 1994, with a final EIS available in October of 1994. And we will continue to look at that. We are looking at it now as we speak, throughout the process, to see how we can shorten that time, but in order to satisfy those requirements, there are a lot of shortcuts that would be available in other actions that are not available in this one.

Mr. DEFazio. I understand some of the constraints of NEPA in dealing with the EIS, but on the other hand, apparently there is contemporaneous design work and other things that could be going on. I mean if your EIS is going to be complete in the end of October 1994, then I would assume that if it finds it would not, that drawdown is allowable and desirable, that in fact that could take

place the following spring. But my understanding is there are some other issues about—

General HARRELL. Yes, sir, and that is sort of a disagreement between us as the engineering agency and the Council. We are working, coordinating, communicating to try for us to lay all the issues on the table for them to look at, and hopefully we can come together with a full understanding of what is engineeringly possible and what the time frame of that is.

Mr. DEFAZIO. Okay. Again, I want to get back to the sense of urgency.

General HARRELL. Yes, sir.

Mr. DEFAZIO. You know, I am not a scientist and we will have others who will address the drawdown. In fact, we will have some testimony from some who say increased flows are harmful, which will be of interest, I am sure, to many people.

General HARRELL. Yes, sir.

Mr. DEFAZIO. But, you know, I think we are going to reach a conclusion that we should drawdown John Day, as the largest, slowest impediment to the migration, and I would just think it would be a pretty good bet and not too risky for the Corps to do all necessary contemporaneous preliminary preparation while fulfilling the full requirements of the law under the EIS, with the assumption that the EIS is going to find that out, you know, that it would be desirable, and I do not think it would be too expensive to do the ancillary work.

General HARRELL. Sir, I agree, and we have that and I will commit to you and others that we will move at full speed on this. I would also like to provide further information on our John Day activities for the Record.

[The information follows:]

The John Day Drawdown study is an element of the Corps System Configuration Study (SCS), the scope of which includes alternatives for providing fish recovery and survival benefits. Phase I (reconnaissance level) of the SCS is scheduled to be complete in the spring of 1994.

The Energy and Water Development Appropriations Act of 1993 included two million dollars for Advanced Planning and Design (AP&D) of modifications to public and private facilities that may be affected by a sustained operation of John Day at minimum operating pool. At this time, our Portland District office is developing a detailed scope of work and schedule for the AP&D activities. The general philosophy is to evaluate John Day drawdown on its own merits and complete necessary studies and designs as quickly as possible so that a decision whether to implement the drawdown can be made earlier than for other SCS elements.

It is anticipated at this time that 3 years will be required to complete the necessary design activities for John Day modifications. Should it be determined that the drawdown is beneficial, it is anticipated that modifications to affected facilities could be completed such that a drawdown to the minimum operating pool could be undertaken in 1999.

Mr. DEFAZIO. And I would be interested, as soon as you have the legal opinion finished, if you would submit it to this task force. I would appreciate that because I would be interested in some of the findings.

General HARRELL. Yes, sir. Counsel is currently reviewing this question and I will provide that analysis as soon as possible.

Mr. DEFAZIO. One other question, General, the Systems Operation Review, I guess, includes not all of the Bureau of Reclamation dams, only those which are hydropower capable. And I am cu-

rious why, since what we are really looking at here is flows and water, why we are not looking at those additional dams.

General HARRELL. Well we are looking at Coulee—can I answer that for the record?

[The information follows:]

This question was also directed to Mr. Ken Pedde of the Bureau, whose response is included in this transcript. I would like to add to Mr. Pedde's response that while the Bureau projects are not specifically addressed, the SOR does include options to model a limited volume of shapeable Snake River water.

Mr. DEFAZIO. Sure, that would be fine. I understand, I do not expect you to be the expert. You have many obligations in your job, so that is fine and we would be happy to take the answer for the record.

Now how about, let us turn to Mr. Smith, in terms of moving toward drawdowns here. Has NMFS found any indication that flows are harmful to smolts?

Mr. SMITH. No, sir.

Mr. DEFAZIO. Okay. So do you believe that increased flows of generally beneficial to a number of varieties of salmon?

Mr. SMITH. I believe there is general agreement on that principle, yes.

Mr. DEFAZIO. Okay. So in order to increase flows, one option is drawdowns. Where do you stand on the idea of the drawdown of John Day?

Mr. SMITH. On John Day?

Mr. DEFAZIO. Yes.

Mr. SMITH. We have supported the drawdown of John Day and feel that the bypass facilities can accommodate drawdown and would like to see that go forward.

Mr. DEFAZIO. Okay. How do you feel about sort of the pace at which we are moving here toward that drawdown?

Mr. SMITH. We had hoped that it would move faster. We had committed to work with the Corps to do that, and it appears now that after a further look at it, with the structural changes and the other modifications and the NEPA process and so forth that have to be met, will cause some delay. We had hoped something might start as early as 1995, but that does not look feasible at this point.

Mr. DEFAZIO. I would hope that your agency would provide any expertise it has to the General's agency in terms of developing the EIS so we can expedite that in terms of, particularly, the question of whether or not flows are beneficial.

Mr. SMITH. Yes, we are working directly with them on this.

Mr. DEFAZIO. Okay, thank you.

I have further questions, but for now I will defer to Mr. LaRocco.

Mr. LAROCO. General Harrell, some of my constituents have advocated a federal appropriation to the Corps to allow them to perform modifications on the four lower Snake River dams. Does the Corps have the capacity to make these modifications should Congress appropriate this money and do you support this concept? Do you support the appropriations?

General HARRELL. Well I guess I need to give a qualified answer to that question. I do not know at this point what the specifics of the appropriations would be for, what kind of modifications; we are doing modifications all the time. In response to the Council's plan,

we are building and installing screens; that is a modification. So before I answer that with any degree of certainty, would like to know what that involves.

Mr. LAROCO. Well I think they are modifications to allow drawdown. I think the Senate champion on this is Senator Hatfield. Are you familiar with his proposals?

General HARRELL. Yes, sir.

Mr. LAROCO. Well that is what I am talking about.

General HARRELL. Oh, okay.

I think we have gone on record that if authorization and appropriation, the process takes over, we have the capability—was that your question. We do have the capability within Walla Walla District in the District Office, in fact, to do that work. Yes, sir.

Mr. LAROCO. Okay. Mr. Smith, would those modifications be helpful, in your view?

Mr. SMITH. From what I understand, yes.

Mr. LAROCO. And how long would it take to complete modifications in the context that we are discussing those? I have heard 13–17 years. Is that reasonable when it took a couple of years to build these?

General HARRELL. When I testified before the Hatfield committee in September of last year in Portland, I indicated 14–17 years it would take to do that modification, and I cited about \$4–5 billion with which to do that. There are some lesser modifications that could be done in less time and less money. We are talking 4–5 years, and so it depends on what you want to buy, whether you want to buy a Chevrolet or a Cadillac. But yes, sir, we have the capability—the 14–17 years for the Cadillac is still out at \$4–5 billion, and yes, sir, we would be on track with that.

Mr. LAROCO. Okay.

General HARRELL. And I have already testified to that.

Mr. LAROCO. Mr. Smith, you testified in the early part of your testimony, I am not sure if you gave it in your oral testimony, that NMFS' appointed recovery team expects to distribute a peer review draft of proposed Snake River salmon recovery measures in October. And you said, "The recovery team will be seeking comments from scientific and technical reviewers from State, Federal, tribal, academic and private entities who provided information and data to the team." I had raised a question with the earlier panel about peer review. Is this an attempt to get some consensus within the scientific community, is that what this is all about?

Mr. SMITH. As you are aware, the recovery team has made several excursions throughout the region, throughout the past 2 years, gathering information in order to prepare the Recovery Plan. It is a massive amount of information. They felt it would be prudent to take their initial results that they have learned from this information, and put it in a peer review document so it would go back to those who provided that information, to ensure that it was used properly. They included it, whatever, and so they could get a reality check on what they had put in the plan. And that is the attempt here, to make sure that they are on track with what they had received before they formally submit it to us and then it goes through the normal process of public comment and so forth.

Mr. LAROCO. You know, when you talk about ecosystem management, some people say you will know it when you see it. It is a warm and fuzzy feeling. But there has been some talk about it today. I think we have an example of it here in the Columbia basin. If you are talking about ecosystem management and it is all on your desk somewhere, this whole thing because under Section 7 consultation, you are looking at timber sale plans, you are looking at cattle grazing and the whole thing within the Columbia basin ecosystem. So I think we are closer to knowing what it is all about. But I think what is critical—I will just make this point with you, and I have been pressing that point today—we also have to be looking at sustainable economies, sustainable communities and there has to be a buy-in by the local people. They have to understand what is going on, it has to be explained to them and the scientific data that is being put out has to be clear.

So as we move along here, it is very important to my constituents that they understand exactly where we are headed. Now you are going to be issuing this draft in October and what I am saying too is I am concerned about your staffing. Could you address that, on whether you have enough people to deal with this whole process that we are embarking on here in terms of ecosystem management for our region?

Mr. SMITH. There are two parts of that, if I may. In addressing your initial comment, I think there is an important distinction to be made with reference to the consultation process, and that is looking at a jeopardy standard or a jeopardy level to ensure that the species are not going to extinction while you are building the recovery process. The recovery process is another level, another standard higher than that that brings in those actions to rebuild the stocks to the listing.

The ecosystem approach provides a unique opportunity, and in looking at what the Council has done with the *Strategy for Salmon*, that includes all the species throughout the basin, not just the listed ones, and allows us to integrate this process so that we can consider it and balance all these needs and not just have it narrowly focus on the ESA species. So I agree, this is probably the closest that we are going to get to be able to implement this kind of procedure, and it is really important that we do work together to do that.

Now in the meantime, we do have this consultation process as part of the Endangered Species Act until the Recovery Plan is implemented. Our staffing is carried out by the Portland Office staff and some additional contract staff through the Fish and Wildlife Service here in Boise that has looked primarily at BLM consultations. We started out with two people.

Mr. LAROCO. Started out with two people?

Mr. SMITH. Two people. We are now at 24 and building. And as the various appropriations come up, we have been able to add some additional staff. We have been able to bring in contract people, retired annuitants and wherever we could find people to help fill in this schedule that we are dealing with. We have been able to do that, and further through agreements with the Forest Service in particular in this area on streamlining the process so that they provide us adequate information so that we can accelerate this proc-

ess. I am aware of some of the concerns you have had with your constituents in having to deal with it.

Mr. LAROCO. Yes, and this is a double-edged sword. People want us to reduce government, but they want us to increase the responsiveness of the agency. So this is going to be a tough sell.

Mr. SMITH. I think as we work toward this watershed analysis and these concepts that are now evolving—it is separate on the western side, we understand that—but there are some important concepts there in dealing with this in a larger unit, that should facilitate breaking it down smaller from 10,000. From something that was originally some 10,000 consultation projects with the Forest Service, we are down now to 81; we have consolidated them down. So if we can bring in these efficiencies, we can reduce the gridlock.

Mr. LAROCO. Well I can just say you are going to be blamed for everything in this region, I hope you know that.

Mr. SMITH. That is why we have said ESA is not the answer.

Mr. LAROCO. Yes, the owner of that lumber mill in Elk City recently blamed you for not moving forward on a salvage sale. Then when I went to Mr. Schnitten, and he speeded it up and released the timber sale, then he did not bid on it, if you can imagine that.

Mr. SMITH. We are aware of that, yes.

Mr. LAROCO. The timber went to Oregon, if you can imagine that. And then I am getting blamed for the demise of the mill in Elk City of all things, if you can imagine. But you were the bad guys and I was the bad guy, and he had his hands in his pocket while timber went to Oregon, but you know, this keeps going on and on.

Mr. DEFAZIO. A lot of timber going to Oregon.

Mr. LAROCO. It did not go to his District. [Laughter.]

I thought we cut a lot of timber in the First District, but they cut a lot of timber in Douglas County, or they used to anyway.

You say, "In NMFS' opinion, the most critical need for the Council to consider is an evaluation of new institutional arrangements that will provide improved coordination between the federal, state and tribal entities and greater accountability for implementing Council program tasks." That sounds good. I am concerned about further evaluations, further monitoring and a speeded-up mode here.

Mr. SMITH. The most immediate process that that could be available is the Systems Operation Review and the broad range of alternatives that do exist there for management of the operations as well as the institutional arrangement, the structure for managing it. That is a bit behind schedule, but if those processes already available can be used—or there may be others similar. The point is, as we have heard earlier, there is fragmentation in implementation of some of the procedures; there is a need for some accountability. There is no consequence if you do not meet one of the tasks that the Council has agreed to assign and so they slip. And it does impact the other partners in this who are relying on that piece of work to be done before they can start theirs. And it may not be BPA funding. It could be other state and federal funding that we are awaiting or in line to do this. So there is a need to coordinate that kind of activity, so we are getting efficiency out of the limited resources that are presently available to do that. So there is an in-

stitutional structure of accountability that needs to be somehow crafted in this process.

Mr. LAROCO. And one final thing, Mr. Chairman, if I may.

Mr. DEFAZIO. Fine.

Mr. LAROCO. What science do you have and what can you share with this task force, this committee, on barging at this time? Some people say if barging was so wonderful, we would not be where we are right now, but some people advocate just continued barging, just keep doing what we are doing, status quo. Status quo does not seem to be working too well. Otherwise, we would not be here. But what do you think? What do your scientists say?

Mr. SMITH. Our scientists conclude that there are benefits to transportation.

Mr. LAROCO. Okay.

Mr. SMITH. There is disagreement. There is a limited amount of information available. There is some uncertainty around it, but our scientists have concluded that it does provide benefits in the short term. Again, we must emphasize we do not see this as a permanent solution. This is an interim solution until we can get the fish back in the river, and we certainly would like to see more energy put in that direction, focusing on how we can build a strategy to get fish in the river rather than spending our time in conflict over whether transportation is good or bad. We have concluded that it is beneficial.

Mr. LAROCO. General, any thoughts on barging?

General HARRELL. No, my thoughts are very supportive of the thoughts of Mr. Smith.

Mr. LAROCO. Thank you, Mr. Chairman.

Mr. DEFAZIO. Thank you.

To Mr. Smith, you mentioned concerns about fragmentation in your earlier testimony. If you were listening to the earlier panels, you would have heard some discussion of two principles. One, looking at reviving perhaps an enhanced basin commission to improve coordination among all appropriate parties, including the tribes and others. And two, the idea of BPA establishing more of a trust fund or lump sum arrangement, and there are some scenarios under which such a lump sum would go to National Marine Fisheries Service. And I would like to know how you feel about that, if you feel you are capable of administering those things. So if you could answer those two questions.

Mr. SMITH. First of all, I think as far as the ultimate institutional arrangement, I would agree we need a lot of study and whatever, but we should look at various alternatives and see what works best for what we are trying to achieve here, and there are some models out there perhaps that can be used to do that. Whether it is the National Marine Fisheries Service or we are a part of it, I think that would have to be determined later.

Within the ESA context, it is highly likely that the Recovery Plan will be looking at oversight panels for the major activities that go on, so they are coordinated to achieve recovery there. Whether that would provide a model that could be extended, we will have to look at that when we get that option.

As far as funding the whole mix, any stability that can be brought to getting back to focus on getting the work done and

along some critical path to get the priorities implemented for immediate survival to halt the decline of the declining stocks, we would certainly support. We have got to deal with longer-term recovery as well, but if we are going to turn these things around and keep them from being listed, we have got to halt it. We have got to do something now, get on the most immediate priorities, or we are going to be playing with the ESA listing one by one by one, and that is not going to be cost effective.

Mr. DEFAZIO. Okay. To Mr. Van Pelt, first off, I have a number of concerns about the thus far rather vague proposals I have seen regarding BPA as a government corporation, and one point I have made at the outset to anybody and everybody within earshot is that mandates of the Northwest Power Act are not going to go away. And anybody who is proposing changes in BPA's structure to make it more competitive or talking about any other number of alterations, repayment reform, whatever, underlying all those, or overarching all those, will be the continued mandates of the Northwest Power Act, in my opinion, which goes to conservation, renewables and fish and wildlife. I will certainly ask BPA since they are apparently working with the Department of Energy on a government corporation decision, in their opinion what tribal trust responsibilities would be required of that corporation. I think it is an excellent question and I share your concern there. I did not mean to slight the tribes, but I have been raising a number of concerns about mandates that would still apply, and this is an additional one.

You heard the Administrator and my question to Mr. Smith about the lump sum transfer. How do you think that would best be done in the opinion of the tribes, to meet the tribes' interests and treaty obligations? Would it require that the tribes receive a direct apportionment or do you have some confidence that NMFS or someone else could administer those funds in such a way that, you know, we could get the job done to your satisfaction?

Mr. VAN PELT. Well, Mr. Chairman, as you probably know—I forget what the name of it is—but right now select tribes in Oregon are getting like one lump sum to be administered by themselves without going through the BIA. And I believe that if the tribes have been advocating for fish and wildlife monies to go directly to the tribes so the tribes could administer it themselves. Yes, I believe all the tribes are capable of administering any funds that are given to them for fish and wildlife.

Mr. DEFAZIO. But you would certainly strive to work in a coordinated fashion so that what you are doing complimented other efforts rather than was contradicting.

Mr. VAN PELT. Oh, yes, we would.

Mr. DEFAZIO. Okay. Let me see, I had another question. Do you want to discuss hatcheries a little bit and what the tribes feel are the problems with the hatcheries, and what you would propose as a change in the way that whole system is run? I think you have an opinion on that.

Mr. VAN PELT. I do, Mr. Chairman, but I would rather refer that to our staff person.

Mr. LOTHROP. Well, I was hoping Mr. Van Pelt would repeat a presentation I have heard so often by Delbert Frank of the Warm

Springs Tribe, who remembers as a boy when the Corps of Engineers was approaching the tribes with proposals to construct Bonneville Dam. And the Corps of Engineers promised that there would be fisheries mitigation, there would be hatcheries upstream above the tribes' fishing places to mitigate for the impact of Bonneville Dam.

Instead what happened was the Mitchell Act which was enacted simultaneously basically with the Bonneville project, with the authorization for Bonneville Dam, brought about the construction of a number of hatcheries and most of those hatcheries in the Columbia basin have been below Bonneville Dam. That has effectively seen as a shift of the fisheries resources from upstream areas to downstream areas in the Columbia basin, and that presents a number of inequities to the tribes.

In a broad context, we are trying to work with those kinds of equitable considerations and restoring fish to the up-river areas where the tribes historically fish. We have a number of proposals that we are moving forward with to try and reform hatchery management practices so that the hatcheries can be used to put fish back in the rivers to rebuild the runs at all the tribes' usual and accustomed fishing stations, and those usual and accustomed fishing stations are spread throughout the tributaries. We believe that hatcheries can be used as a tool to restore natural spawning populations of salmon, but that will mean changes in the hatchery management programs and that means a changed way of doing business—changes in funding, changes in personnel, changes in management practices. And those we are encouraging to come about as quickly as possible.

Mr. DEFAZIO. Thank you.

Mr. Smith, on the Section 7 consultation, I think you in passing in your testimony mentioned something about involvement by the tribes and the public in Section 7 and striving to make that a bit more inclusive. Could you expand on that? I have got to say I have problems with the process.

Now here is the bottom line. In resolving any of these natural resource conflicts to anybody's satisfaction, there is going to have to be a very open and public process. Otherwise, people are going to suggest there was a hidden agenda, a deal was cut, it was political, whatever. You know, I am very critical of the way the President has attempted to resolve the forest crisis in the western regions of Oregon, Washington, northern California because I do not think it is going to work. That is a completely secret process by a group of scientists and the biggest problem they are having is they do not have any credibility with anybody, the environmentalists or the industry, because it was secret and everyone questions how they got to where they got. In fact, I was the first person to raise those concerns on the day it was released and now I have been joined by the most radical environmental groups and the most hard-line industry groups and basically all of us are suing to get that information because everyone wants to know how did you get there.

Could you comment on how you are going to improve Section 7 so that we do not have that problem?

Mr. SMITH. To start with, the way the law is presently constructed is the consultation occurs between the federal agency responsible, in this case National Marine Fisheries Service, or the U.S. Fish & Wildlife Service, who share joint responsibility for administering the Act, with the action agency, in this case it is our federal agencies. The federal action agency provides a biological assessment of the impacts and then we determine whether that action is likely to jeopardize the existence of the species. And this is required if the action may affect, it begins the process.

In the Northwest we have, in the listing process and other parts of ESA, attempted to maintain an open process and to have involvement. The Section 7 process does not allow that, but there are some exceptions that have occurred that have allowed an opening up and may lead the way for a solution.

Mr. DEFAZIO. Does it allow it on a statutory basis, an administrative rule basis?

Mr. SMITH. It is between the two agencies.

Mr. DEFAZIO. Minimally the two agencies could have the discussions at a table in a room like this with microphones and an audience out there. That is not precluded by law certainly; it does not have to be a confidential, secret discussion.

Mr. SMITH. I am sorry, I am not able to cite you, but I can get you the cite, if you wish.

[The information follows:]

INSERT TO TESTIMONY
OF GARY SMITH, NATIONAL MARINE FISHERIES SERVICE
BEFORE THE BONNEVILLE POWER ADMINISTRATION TASK FORCE
SEPTEMBER 24, 1993

During the National Marine Fisheries Service's (NMFS) testimony presented by Mr. Gary Smith, Northwest Region, before the Bonneville Power Administration Task Force on September 24, 1993, in Boise, Mr. Smith agreed to supplement the record on the role of the public in consultations under section 7(a) of the Endangered Species Act (ESA). Following is NMFS' analysis of the statute and regulations in response to your request. We also have included a brief review of the efforts provided by NMFS to maintain an open process in all aspects of the ESA which we believe is a model for ensuring full and open participation for all stakeholders in ESA actions.

In reviewing this information, we believe the main issue of concern by various regional interests in the ESA process, is not whether the administrative process is open, but rather the desire to have influence over or be involved in the decision making process delegated to NMFS in issuing biological opinions on proposed federal actions. Clearly, we can continually strive to make improvements in affording the public greater opportunities to participate and be aware of the issues and alternatives being considered to ensure the continued existence of listed species. However, NMFS can not abrogate to the public process its responsibility for making ultimate biological decisions on whether actions are likely to jeopardize listed species.

Section 7 Consultations

ESA section 7(a)(2) requires all Federal agencies to ensure that their actions are not likely to jeopardize the continued existence of any listed species. The same section requires the action agency to consult with NMFS. In providing a biological opinion, NMFS is giving its expert advice, on which the action agency relies. However, the ultimate decision on actions affecting listed species and the responsibility to avoid jeopardizing them lies with the action agency.

There is no statutory or regulatory provision for public participation during the consultation process. This contrasts with the statutory requirements for notice and comment for: Listings and critical habitat designation under section 4 of the ESA; taking permits under section 10 of the ESA; and recovery plan adoption under section 4.

The statute and regulations provide for participation by the permit or license applicant (where the proposed federal action is authorization), who participates in the consultation in

cooperation with the action agency. The regulations provide for obtaining comments on a draft biological opinion only if it is a draft jeopardy opinion, obtaining comments only from the action agency, and only for the purpose of obtaining the agency's analysis of any reasonable and prudent alternatives included. An applicant may request a copy of the draft opinion from the action agency.

The absence of statutory or regulatory provisions for full public participation during the interagency consultation process reflects, in part, the fact that the consultation and resulting biological opinion do not represent final decisions concerning the agency action. The action agency that is ultimately responsible for the final decision often involves the public in its decisionmaking process through the Administrative Procedures Act, National Environmental Policy Act or other statutory authority, and the biological opinion of NMFS becomes part of that agency's administrative record.

Practical considerations, most notably of providing timely advice to action agencies, do not weigh in favor of public participation in consultations. (However, there are situations where NMFS needs and should use the expertise of entities outside the consultation, particularly state and tribal governments. An example would be their participation in analyzing the effects on listed fish of a complex of actions, such as harvest, hydrosystem and hatchery operations.) NMFS is required to issue its biological opinion within 135 days of the start of the consultation, with 90 days provided for consultation and 45 days provided to complete a biological opinion. Consultations are an evolving process, which includes exchanges of information between the consulting agencies and often involves significant changes along the way to the proposed action and the analysis of impacts. If NMFS chose to permit greater public participation, the only definite mileposts where it would be logical to provide the public notice and opportunity to comment (the usual minimum is 30 days) would be: NMFS's receipt of the biological assessment; and NMFS's preparation of a complete draft biological opinion. (The alternative to formal notice-and-comment -- having "interested" members of the public participate continuously, in a role analogous to an applicant -- runs the risk of either making the consultation unwieldy or inviting charges of excluding other would-be participants.)

(a). Most agencies are quite willing to provide copies of their biological assessments to the public, who are then free to supply information and views to NMFS. NMFS believes it is the action agency's responsibility to obtain and utilize the best scientific and commercial information available in the preparation of their biological assessments. As a matter of policy, NMFS does not distribute biological assessments for public comment,

leaving this responsibility to action agencies, but reserves the right to request additional information and data on any aspect of the biological assessment it believes necessary to produce a complete biological opinion.

(b). As discussed above, the circumstances and purposes for giving even the action agency an opportunity to comment on a draft biological opinion are very limited. Specifically, action agencies are entitled to request and review jeopardy opinions to: (1) Ensure the technical accuracy of the opinion that may save time and resources by resolving any issues early; (2) exchange information for the development of reasonable and prudent alternatives; and (3) provide an opportunity for the submission of new information that may result in meeting the requirements of a no jeopardy opinion.

While NMFS concludes that public participation is not contemplated by the statute and regulations and could prove unwieldy in practice, it has continually sought means of providing opportunities for a more open process.

In preparing biological assessments, action agencies may rely on internal staff or seek the assistance of outside expertise. Section 7 consultations for harvest and hatcheries involve federal, state and tribal entities through the cooperative programs and federal funding. In these instances, the Federal action agencies, U.S. Fish & Wildlife Service, Bureau of Indian Affairs, and NMFS, have used existing Federal, state, and tribal expertise on recognized technical committees and working groups of the Pacific Salmon Commission, Pacific Fisheries Management Council and the Columbia River Fishery Management Plan to prepare biological assessments. These groups also have been called upon to prepare additional assessments during the consultations.

On July 30, 1993, Northwest Regional Director Rolland Schmitt sent a letter to the Bonneville Power Administration, the Corps of Engineers, and the Bureau of Reclamation, requesting that they consider opening their consultation to provide greater involvement by state agencies and tribal governments. Presently, these agencies provide extensive participation through the National Environmental Policy Act (NEPA), but actions described under NEPA do not necessarily discuss specific details considered in the section 7 process. We are aware from subsequent discussions with the Federal action agencies that they are presently reviewing ways to provide greater participation for outside agencies. It is our understanding that the agencies will discuss alternatives for public awareness and participation at the November meeting of the Northwest Power Planning Council's Fisheries Oversight Executive Committee.

Federal land management agencies, U.S. Forest Service and Bureau of Land Management, have not provided for public participation other than through the NEPA process.

NMFS has provided several significant opportunities for public involvement in other aspects of the ESA process which are summarized by activity.

Listing Process

Following receipt of the petitions for Snake River sockeye and chinook, NMFS established an external Biological Technical Committee and a Peer Review Group to assist in the listing assessment process. The Biological Technical Committee was composed of 34 qualified biologists representing a broad range of Columbia Basin interests (see Attachment 1). More than 10 meetings, each open to the public, were convened by the committee during its tenure at different locations throughout the Northwest. In addition, information developed by the committee, NMFS, or materials submitted by interested parties, have been maintained in five administrative records for public inspection in Boise, Idaho, Portland, Oregon (2), Newport, Oregon, and Seattle, Washington. These records are updated on a regular basis and currently number more than one million pages. A mailing list also has been established to inform responsible entities and interested parties of significant issues and to solicit comments. Eleven public hearings were held in Idaho, Oregon, and Washington to provide multiple opportunities for public comment on proposed listings and proposed critical habitat designation. The Peer Review Group was composed of academic scientists from the University of Washington, Oregon State University, University of Idaho, and University of British Columbia who were available to provide expert advice on the scientific issues such as species definition, biodiversity, etc. Subsequent petitions for Illinois River steelhead, Umpqua River searun cutthroat trout, coastal coho, mid-Columbia summer chinook, and Deer Creek summer steelhead will involve state and tribal biologists to assist in status reviews. NMFS also has made open solicitations in the Federal Register to obtain additional biological information to consider in decisions on whether to propose the petitioned species for listing.

Critical Habitat

NMFS initiated a similar approach to that used for listing for the critical habitat process. The Biological Technical Committee was asked to identify biological and physical features they believed were critical to each of the Snake River species. Since economics is considered in the critical habitat designations, NMFS established an Economics Technical Committee made up of 29 qualified economists to assist our contract economist in evaluating the costs of designating critical habitat. These

economists also represented a broad range of regional interests (see Attachment 2) and held a series of public meetings to discuss appropriate methods and applications of economics to the biological and physical features that may require special management attention as critical habitat.

Recovery Process

NMFS appointed a seven member Snake River Recovery Team in January 1992 to prepare a recovery plan for Snake River sockeye and then Snake River spring/summer and fall chinook when they were listed. The team held 29 meetings throughout the region to solicit information and comments on all aspects of activities necessary for the recovery of the listed species. Besides these open meetings, the Team also met in closed work sessions to draft recovery plan recommendations. In addition, the Team has formally solicited the views of interested parties throughout the region on a number of important issues. Estimates of the cost of recovery measures are required in recovery planning. The Economics Technical Committee is assisting in formulating the estimated costs of recovery actions that are presented in the recovery plan. By law, the recovery plan must be submitted for public review and comment before a final plan is adopted. NMFS intends to provide a 60-day comment period and may hold public meetings to discuss the proposed plan.

NMFS remains convinced that an open process is vital to public understanding and support of the measures necessary for the recovery and ultimate delisting of species listed under the ESA. Without public understanding and support of the restoration of important anadromous fish stocks in the Northwest, efforts to preclude further listing of species under ESA can not be initiated and sustained and the high cost of ESA crises intervention will not be avoided.

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Mr. DEFAZIO. Okay, I would appreciate that cite and that is obviously a problem with the Act if that is the case.

Beyond that, there are sort of two levels: one is just for people to listen over your shoulder; and the other is for intervention or involvement. So if you could continue.

Mr. SMITH. The ultimate responsibility for the decision on the biological opinion rests with NMFS or Fish and Wildlife.

Mr. DEFAZIO. That is correct.

Mr. SMITH. But there is this process in between. In most cases, the biological opinions that are developed for hatcheries and for the harvest in particular, there are already existing science management teams who do analyses, and they have worked together to prepare the analysis. So they are aware of what the various alternatives are, and what the impacts are, that are provided to us for the consultation process. So they have been involved and it has provided a mechanism for them to do that.

We are in the process presently with the Council, the BPA, the agencies and tribes of co-funding an analytical group that would do all the region's modeling that goes on for all the consultation, primarily the hydrosystem initially, but would be available for use throughout the region to do the analyses using the various models and provide those analyses to the people preparing biological opinions and assessments and for our use in the end. We feel that this is an important step towards opening the process as well and allowing the people to understand what is going on. We have, and the action agencies have, from time to time, requested information, more information, from whoever might have that information, to assist in the process. We do from time to time; we have worked with the Fish Passage Center or the agencies and tribes if there is a particular area for which we need additional biological information. We will ask them to provide us that kind of analysis for using to include in the process.

We have been working with the operating agencies as well, to see if there is not a way that we might be able to extend that more to the hydrosystem process. It is more open, as I mentioned, with hatcheries and harvesting and so we are exploring ways that we might be able to do that.

Mr. DEFAZIO. Looking at the PNCA, is that what you are talking about, the Northwest Coordinating Agreement and—

Mr. SMITH. That would be one. We have rescheduled the hydro-power consultation so that information is available at the time that planning process begins now, so that that might help there. But the idea is to use the region's expertise, if the action agencies can find some way to use more of the agencies and tribes and other expertise in helping develop the biological assessments and assisting in the analytical work, in addition to the modeling and so forth that goes on. And hopefully we can find something there if we can bridge some of that.

Mr. DEFAZIO. Well just a couple of observations. One, I understand the agency-to-agency issues, but when we are dealing with tribes, we do not put them in the status of an agency or even the general public. We are dealing with sovereign entities who have some special and extraordinary rights. And I am not sure whether we are fulfilling our obligations there—that is something I would

have to look at. I am glad you raised this issue as something that is a statutory problem, since the ESA is probably going to be considered by this Congress, and anything you can provide in terms of the constraints you see on this Section 7 or other consultations to open up those processes, I would find that very helpful in framing some potential amendments to the Act, and also to meet the concerns of the tribes, whether perhaps the Act is inadequate there too. So I think that that merits some examination. Then I just observe the Recovery Plan, and I think you are going to have the same problem. I mean from what I hear, this is something that is being developed. If we are dealing with science and the scientists are so certain of their opinions and the data and everything that is going into it, why do they not sit in an open room where the press can wander in and out and the public can wander in and out, and hear how they got to where they are going to get. All of a sudden one day we are going to have a recovery plan and it is going to be a big surprise to me what is in it and it is going to be a big surprise to everybody in this room what is in it. And again, you may be tied by the existing law, I do not know. But I am just saying it is going to be a credibility problem; it is going to be how did you get there, you know? I would say that as much as science is determining public policy, it should be subject to the same scrutiny as public policy.

Mr. SMITH. I really feel like this peer review process is a step forward in that direction.

Mr. DEFAZIO. Well peer review is, given a set of assumptions, okay. Here are the assumptions that were given or here are the requirements of the Act. A group of scientists get together, and given those assumptions and that, they have come to a set of conclusions. It is not to say that is the only potential conclusion, and we do not know how we got to those conclusions. I mean you could put another group of scientists together with those same mandates, and you could come up with a very different outcome. I am just saying it would be useful to people to understand—scientists are people. They have public, private, political opinions of their own. I do not think they are little nerds who just, you know, do science. And all that goes into the decision-making. That is all I am saying.

Mr. SMITH. I understand.

Mr. DEFAZIO. I am just talking about how we could build a little more public confidence in our processes here, that is my concern, and also involve the sovereign entities who are involved, because I think they have been extraordinarily patient, to tell the truth. I think the tribes probably have some successful courses of litigation they could have pursued that could have been very disruptive, that they have withheld from doing in the hopes that maybe we would finally come around and deal with them honestly and meet our obligations. But I think maybe the patience is running out, and I am worried about that.

Do you have any further questions?

Mr. LARCCCO. Yeah, I have a couple of questions. It has been a very peaceful hearing so far and I suspect the panel might shatter that a little bit, but let me say, Mr. Smith, in the next panel, there is going to be testimony from Mr. Al Wright and he says in his testimony "The latest silver bullet that is being promoted by some in-

terest groups is more water flows. These groups assume that fish move at the same speed as water and move faster than fish will survive. There is no scientific information to support these premises." What is your reaction to that? Is there any scientific information to support those premises?

Mr. SMITH. We are comfortable that the biological basis that we are using to establish flow targets in the system are based on the best scientific information available, and we have proceeded with that.

Mr. LAROCO. Does that mean that there is scientific information to support those premises?

Mr. SMITH. We are in the process now, as you may be aware. There are new studies that are being started that have been focused, that will begin the second year here shortly, that will give us some additional information. There has been a long period, 10 years or better, where there has not been any substantially new information in the process. And this will help us a lot.

At this point, using the best available information, we are very comfortable for the biological basis that we have established the flow targets.

Mr. LAROCO. Okay. Could we talk about harvest for a minute? A lot of people focus on harvest and they think that is the culprit. It does not have anything to do with juvenile flows and moving. Do you have any thoughts on harvest? There is criticism in testimony to come up that with the decreasing numbers of returning spawners and fish, that harvest levels are going up and they are saying that is ridiculous.

Mr. SMITH. I think to the contrary, harvest levels have been substantially reduced in the last few years, certainly well below any level recognized by the Council in their plan. The river fisheries in particular have experienced reductions in harvest levels from previous levels. We tend to focus on harvest. Harvest is something that is directly controllable—you can count the number of fish that you take from it. But I think the dichotomy in judging it with what happens in the juvenile passage and juvenile survival is that harvest is managing the numbers that are available, and juvenile passage deals with the survival of those numbers that are in the system. So you are trying to improve survival to generate the kind of numbers that you would manage in some way, whether they be to return fish to the spawning ground or whether they be fish for commercial, recreational or tribal use. It is sort of looking at it with a different perspective—one of dealing with numbers; the other dealing with survival rates and trying to improve survival rates.

Mr. LAROCO. Mr. Van Pelt, do you have any comments about harvest—you know, there is a lot thrown at the tribes and Native Americans with regard to harvest. People just sort of focus on that and say that this is the bottom line, this is the bumper sticker, you know, solution to this problem. Do you have any comments on that?

Mr. VAN PELT. Representative LaRocco, the tribes, as I stated in the testimony, we have given up spring and summer chinook fishing because we are trying to rebuild those stocks, so our fishermen do not fish it, but also for our tribes we have not allowed any Sunday fishing because of religious practices, we do not fish on Sun-

days also. But also the tribes are very frustrated with the States, you know, the state and federal agencies make the tribes keep track of all the harvestable fish that they take in, but also during the same time, the States, when they go out to check the boats of fishermen to see what their catches are, the information does not come back to the tribes until a year later, while the tribes have to keep track of their harvestable fish at the end of the season. We are accountable for all the fish that we take in by going to the fishermen themselves, as the Yakimas do, or go to the buyers of the fish and they find out from them. But the tribes' biggest complaint I guess with the States is that they are not being very accountable for the fish that the sports fishermen are taking in. The tribes are very disturbed about that and we would like to see the States come up with a plan comparable to where the tribes are keeping track of the fish that they bring in for harvest.

Mr. LAROCO. Okay. Well thank you very much. Mr. Chairman, that is all.

Mr. DEFAZIO. Thank you. I thank the panel for excellent testimony, good response. I think there are a couple of things we are going to get written follow-up on, and I appreciate that. Thank you.

I would summon the next panel. And I am going to caution the next panel at the outset that we sent out for coffee, but we are told we cannot bring coffee into this room, so I sent the money back out for more coffee and when the coffee comes, we are going to have a short break and I am going to step outside the room to drink it. [Laughter.]

And everybody else will have five minutes to do something else too. I certainly will not interrupt you mid-stride, but that is likely to happen during this panel. So please come forward.

Let us get ready to get started here. We sort of chose this panel, the construct of this panel, because I feel that usually a mid-morning lull sets in after a couple of panels and we were hopeful that this panel would help us dispel that.

So with that, we are going to move to the testimony, and we will just go in the order as designated. Same rules apply as to the previous panelists regarding time limits. And just remember that those microphones—keep them close while you are talking.

So Mr. Lovelin, if you would like to go first.

PANEL CONSISTING OF BRUCE J. LOVELIN, EXECUTIVE DIRECTOR, THE COLUMBIA RIVER ALLIANCE; ED CHANEY, EXECUTIVE DIRECTOR, NORTHWEST RESOURCE INFORMATION CENTER, INC.; DON GODARD, MANAGER, GRANT COUNTY PUBLIC UTILITY DISTRICT, ACCOMPANIED BY JIM DAVIS, COMMISSIONER, DOUGLAS COUNTY PUBLIC UTILITY DISTRICT, AND SONNY SMART, GENERAL MANAGER, CHELAN COUNTY PUBLIC UTILITY DISTRICT; JIM BAKER, NORTHWEST SALMON CAMPAIGN COORDINATOR, SIERRA CLUB; AND AL WRIGHT, EXECUTIVE DIRECTOR, PACIFIC NORTHWEST UTILITIES CONFERENCE COMMITTEE

STATEMENT OF BRUCE J. LOVELIN

Mr. LOVELIN. Thank you, Chairman DeFazio, Mr. LaRocco, members of the House Committee on Natural Resources. Thank you for

the opportunity to offer our comments regarding the issues surrounding salmon recovery in the Columbia River basin.

Again, my name is Bruce Lovelin and I am the executive director of the Columbia River Alliance for Fish, Commerce and Communities. We are an organization that represents Northwest Community, industry, agriculture, labor and utility interests.

We believe in maintaining a strong multi-use river system for the economic health of our region, and further we support those comprehensive efforts that preserve naturally spawning salmon stocks.

We have been active participants in the regional efforts, those including Senator Hatfield's Salmon Summit, the Northwest Power Planning Council process and the National Marine Fisheries Service Endangered Species Act review.

First, before I begin with some detailed comments, I would like to backdrop the current salmon situation from our perspective, because I think it is important that we be cognizant of a couple of factors.

First, of course, is that we must be cognizant that the deterioration of the Columbia River basin salmon runs occurred over more than a century, and that restoration unfortunately may require several decades. Solutions that falsely promise a speedy recovery or a silver-bullet approach like the reservoir drawdown plan are simply unrealistic. The region can either spend its time wisely or we can spend our energy and our limited funds spinning our wheels mired in regional politics and in the pursuit of these worthless alternatives.

CRA members contribute much to the economic prosperity and quality of life of the Pacific Northwest and we support tangible, well-reasoned salmon recovery measures. And I have listed five of those. And I will refer to the Northwest Power Planning Council's *Strategy for Salmon* plan.

First, we must set priorities for recovery actions. This is an element that we suggested that the Northwest Power Planning Council adopt in its *Strategy for Salmon* plan. Unfortunately it has not yet adopted such a plan of prioritizing fish and wildlife activities. Given the limited resources that we have, the Council must prioritize the broad range of recovery alternatives to ensure that the most cost-effective and most biologically effective alternatives receive the greatest support.

Second, we must establish firm technical justifications. Expert testimony cautions the region about the high biological risks of reservoir drawdown proposals. The technical Endangered Species Act record reveals that many biologists are concerned that drawdowns could do more harm to the salmon resource than good. We do not believe that reservoir drawdowns have met the test of firm technical justification.

Third, we need to identify alternatives that minimize risk while achieving the goal of increasing salmon returns to Idaho. And it is important I think that we do establish that as a goal of returning salmon to Idaho. The reservoir drawdown plan again is flawed and would lead potentially to additional mortality to the very salmon that we are trying to enhance. This is caused by reduced fish guidance efficiency, problems involving gas supersaturation, increased

predator concentrations, and increase adult passage mortality, let alone the ecosystem impacts of drawdowns that could occur to resident fish and wildlife.

Fourth, require actions to meet a cost-effectiveness test. We must identify measures that will reap the greatest biological benefit for the dollars committed. The National Marine Fisheries Service has convened an Economic Technical Committee to advise the service on the economic merits of the Recovery Plan. Likewise, the Army Corps of Engineers and the Bonneville Power Administration are using comprehensive cost-effectiveness analysis methods to salmon recovery planning. All of these groups stress the need for cost-effectiveness.

And then finally, fifth, we must rely on our managers and force our fish and wildlife managers to be accountable for their decisions. Management of the federal Columbia River system is a Federal Government activity. It is impractical, imprudent and probably illegal to turn over the operational requirements of the system to a non-federal body such as the Northwest Power Planning Council. The existing Council's fish and wildlife authority should not be extended beyond its current form. We believe that the region is effectively addressing the problem of salmon enhancement. We believe that what has been lacking has been the fiscal responsibility of fish management agencies for salmon enhancement. The region has spent well in excess of one billion dollars and in 1993 alone has spent almost \$300 million through higher power rates for salmon enhancement activities. We have provided the resources to our state and federal fish management agencies, yet we lack the accountability for those funds by these agencies or by the Northwest Power Planning Council.

Within this sound framework that I have just described for salmon recovery, we think that the cornerstone for the salmon recovery effort is the smolt transportation program—what I think you have referred to as the barging program. We think that enhancements need to be made for those; those can be put in place near-term and frankly can meet the costs and the needs of the other multi-use river users. Other measures that would complement that, and are necessary, would include adequate production for productive habitat areas, reductions in ocean and in-river harvest and revised hatchery management practices.

The Columbia River Alliance also supports water conservation management practices within irrigated agriculture, but we do so only based on site-specific, technically credible evaluations. And we believe to be truly effective, this program must include financial incentives and the voluntary cooperative participation of local irrigators and communities.

As we move forward with these key recovery measures, the region must gain an appreciation that simply some factors are outside our control. For example, the Snake River chinook runs have followed overall production trends declining similar to the trends apparent in other West Coast rivers, both with and without dams. Clearly, ocean and inter-related inland climate effects vary from year to year, and these effects can either help or hurt our up-river restoration efforts. We must be cognizant of this factor.

If we are going to get the job done, then we must advance biologically effective and cost-effective measures to the forefront of our recovery plan. The reservoir drawdown proposals dismally fail to pass any such criteria. These proposals have only served to distract resource planners away from meaningful recovery actions. Salmon enhancement plans must be biologically and cost-effectively founded.

Thank you.

Mr. DEFAZIO. Thank you.

[Prepared statement of Mr. Lovelin and attachments follow:]



Columbia River Alliance

For Fish, Commerce and Communities

TESTIMONY OF
BRUCE J. LOVELIN
EXECUTIVE DIRECTOR
THE COLUMBIA RIVER ALLIANCE
PORTLAND, OREGON

REQUESTED BY

THE U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON NATURAL RESOURCES

REGARDING THE ISSUES
SURROUNDING WEAK STOCK SALMON RECOVERY
IN THE COLUMBIA RIVER BASIN

SEPTEMBER 24, 1993

Chairman DeFazio and members of the House Committee on Natural Resources, thank you for the opportunity to offer my comments regarding issues surrounding salmon recovery in the Columbia River Basin.

My name is Bruce Lovelin, and I am the Executive Director of the Columbia River Alliance for Fish, Commerce, and Communities, an organization that brings together diverse entities throughout the Northwest in support of a balance of economic, biological, cultural and social values in management of the Columbia River system.

We believe in maintaining a strong multi-use river system for the economic health of our region and comprehensive efforts to preserve naturally spawning salmon that are based on good science, least cost and economic reality. We are committed to the ideal that regional commerce and naturally reproducing salmon are compatible.

The deterioration of Columbia River Basin salmon runs occurred over more than a century, and the restoration of the runs will at least require several decades. The region can either use this time wisely, or we can spend our energy and funds simply spinning our wheels mired in regional politics and the pursuit of worthless alternatives.

Columbia River Alliance members contribute much to the economic prosperity and quality of life of Pacific Northwest citizens. CRA supports tangible, well-reasoned solutions for salmon recovery. The Alliance recommends that an effective plan for salmon recovery should adopt features basic to any successful venture, whether public or private in nature. In reference to your stated questions, we believe these features include:

1. Setting priorities for the actions to be taken. This is an element we suggested that the Northwest Power Planning Council adopt in its "Strategy for Salmon," plan. Unfortunately, the council has not adopted priorities in its fish and wildlife planning. To avoid placing emphasis on questionable alternatives, the Council must prioritize the broad range of recovery alternatives, based on their contribution to the goal of increased adult returns of threatened or endangered salmon species to the Snake River.
2. Establishing firm technical justification for the actions pursued. The Endangered Species Act (ESA) administrative record abounds with technical documentation. For example, expert testimony cautions the region about the high biological risks associated with reservoir drawdown proposals. This technical record reveals that many biologists are

concerned that drawdowns would do more harm to the salmon resource than good.

3. Identifying alternatives that minimize risk while achieving the goal of increased returns. Using the same example, a Snake River reservoir drawdown would likely lead to additional project mortality due to reduced fish guidance efficiency, problems involving gas supersaturation, increased predator concentrations, latent smolt mortality below Bonneville Dam due to the effects of cumulative project passage through the Snake-Columbia River system and increased adult passage mortality.
4. Requiring actions to be tested for cost-effectiveness and least cost. Cost-effectiveness analysis allows for an identification of those measures that will acquire the greatest biological benefit for the dollars committed. The National Marine Fisheries Service has convened an Economics Technical Committee to advise the service on the economic merits of its recovery plan. The committee is presently evaluating a comprehensive set of salmon recovery measures and determining those measures that will meet cost-effectiveness criteria. Likewise, the Army Corps of Engineers and Bonneville Power Administration are using a comprehensive cost-effectiveness analysis approach to salmon recovery planning within the System Configuration Study.
5. Relying on managers who will be held directly accountable for their decisions. Management of the federal Columbia River power system is a federal government activity. It is impractical, imprudent and probably illegal to turn the operational requirements of the system over to a non-federal body, such as the Northwest Power Planning Council. The existing Council's fish and wildlife authority should not be extended beyond its current form. To do so implies that the major responsibilities of the region's federal resource agencies should be negated, and that the Council would somehow perform better than the resource agencies presently involved. The region, with its federal agencies, has effectively addressed the problem of salmon enhancement. We believe what has been lacking has been the fiscal responsibility of fish management agencies for salmon enhancement. The region has spent well in excess of \$1 billion, and in 1993 alone has spent almost \$300 million through higher power rates for salmon enhancement activities. We have provided the resources to our state and federal fish management agencies, yet we have no accountability for those funds by these agencies or the council.

Within a sound framework for salmon recovery, enhancements to the existing smolt transportation program will be the basis for success of the other measures. These measures would include adequate protection for productive habitat areas, reductions in ocean and in-river harvest, and revised hatchery management practices.

The Columbia River Alliance supports water conservation management practices within irrigated agriculture, but we do so only when based upon site specific, technically credible evaluations. To be truly effective, this must include financial incentives and the voluntary participation of local irrigators.

Also, as we move forward with these key recovery measures, the region must gain an appreciation for some factors beyond our control. For example, the Snake River chinook runs have followed overall production trends similar to the trends apparent in other West Coast production areas. Clearly, there exist ocean and inter-related inland climate effects that vary from year to year, and these effects can either help or hurt our upriver restoration efforts. We must be cognizant of this factor.

A significant amount of the technical literature on salmon enhancement points toward a clear direction. First, we must take a comprehensive approach to salmon recovery, recognizing the full range of human and ecosystem impacts affecting habitat, river system passage, ocean environment, and adult escapement back to the spawning grounds.

Second, we must set priorities for the basic measures pursued. This approach should be used to establish priorities is cost-effectiveness analysis or least-cost planning. In simplest terms, the application of cost-effectiveness analysis means choosing measures that will get more fish back to Idaho, not less, and at least cost to the region. Also, we must consider actions that minimize the risks to salmon recovery.

If we are going to get the job done, then we must advance biologically effective and cost-effective measures to the forefront of our recovery plan. The reservoir drawdown proposals dismally fail to pass any such criteria. The drawdown proposals only serve to distract resource planners away from meaningful recovery actions. Salmon enhancement plans must be biologically and cost-effectively founded.

The NPPC's "Strategy for Salmon"

Is the NPPC's Strategy for Salmon an appropriate and sufficient framework for salmon recovery efforts in the Columbia Basin? What are the strengths and weaknesses of the Strategy for Salmon?

The greatest strength of the Strategy for Salmon plan is its recognition that there is no "silver bullet" for salmon recovery. Recovery measures must take into account impacts incurred during the complete salmon life-cycle. This includes protection for productive spawning areas, for system passage through the Snake-Columbia river system, and for sufficient adult escapement from ocean and in-river fisheries back to spawning areas. The plan addresses a broad range of human impacts to the Snake-Columbia River salmon runs.

Also, the Council has shown a willingness to engage diverse interests and parties in their planning effort through an exhaustive public involvement program. The Council deserves credit for providing open access to and a broad public forum for salmon recovery planning.

But the Strategy for Salmon plan does exhibit some crucial weaknesses, and this factor requires some specific discussion about salmon recovery planning.

Establishing Salmon Recovery Priorities:

The greatest weakness of the plan is its failure to prioritize recovery measures, given the broad range of available alternatives. By not accepting the discipline required for setting priorities, the Council has placed needless emphasis on some highly questionable alternatives, while giving more productive measures less attention.

The methodological approach that should be used to establish priorities is cost-effectiveness analysis or least-cost planning. Cost-effectiveness analysis allows for an identification of those measures that will acquire the greatest biological benefit for the dollars committed. In the case of the Snake River weak salmon stocks, the objective is to maximize the total number of adult salmon returning back to Idaho waters for each recovery dollar spent. In simplest terms, the application of cost-effectiveness analysis means choosing measures that will get more fish back to Idaho, not less, and at least-cost to the region.

The Council is no stranger to cost-effectiveness analysis or least-cost planning. It adamantly endorses least-cost planning for its regional power plan. Moreover, the Council is well aware of the provisions in the Northwest Power Act calling for cost-effectiveness analysis to be applied to the fish and wildlife program. But the Council refuses to subject the Strategy for Salmon plan to the scrutiny of a comprehensive cost-effectiveness analysis. Some Council members, and some of their staff, have been quite candid about this issue and stated to Alliance members that the plan is, first, driven by regional politics and, second, a course of action based on science and technical information.

While the Council has attempted to evade cost-effectiveness for salmon recovery planning, others are taking a more rigorous approach. It is significant that the National Marine Fisheries Service (NMFS) has convened an Economics Technical Committee to advise NMFS on the economic merits of its recovery plan. The Committee—composed of economists from federal and state agencies, academia, and industry—has formally endorsed a cost-effectiveness framework for salmon recovery planning. The Committee is presently evaluating a comprehensive set of salmon recovery measures and determining those measures that will meet cost-effectiveness criteria. Likewise, both the Army Corps of Engineers and Bonneville are using a comprehensive cost-effectiveness analysis approach to salmon recovery planning within the System Configuration Study (SCS) and work undertaken by Bonneville to assess the most effective means of implementing Basin-wide salmon mitigation and enhancement (studies conducted by Resources for the Future).

The importance of using cost-effective for ranking recovery measure actions can be illustrated by some of the work that has been completed by members of the NMFS Technical Economics Committee. *In one review of a comprehensive set of recovery measures, it has been estimated that the costs per returning adult salmon back Idaho waters—for one complete optimized salmon life-cycle—could range between hundreds-of-dollars per fish (for smolt transportation enhancements) to as much as several hundreds-of-thousands-of dollars per fish (for a John Day Pool drawdown).* This difference in magnitude, dollars per returning adult, between the various measures reflect the degree of both biological effectiveness and economic cost (see Attachment A).

Advancing Low Risk Alternatives:

The lack of priority for measures considered within the Strategy for Salmon plan affects other key principles for successful salmon recovery planning. *Most significantly, the Council's fixation with reservoir drawdowns on the Lower Snake River and for the John Day Project displays an inherent lack of apprehension for pursuing high-risk, low-benefit alternatives* (see Attachment B).

The Endangered Species Act (ESA) administrative record abounds with technical documentation and expert testimony cautioning the region about the high biological risks associated with reservoir drawdown proposals. This technical record reveals that many biologists are concerned that the drawdowns would do more harm to the salmon resource than good. For example, a Snake River drawdown would likely lead to: additional project mortality due to reduced fish guidance efficiency; problems surrounding gas supersaturation; increased predator concentrations; latent smolt mortality below Bonneville Dam due to the effects of cumulative project passage through the Snake-Columbia River system; and increased adult passage mortality. Also, the Northwest Power Planning Council staff agreed with industry analysts that a drawdown under low water conditions would not be as effective in protecting juvenile salmon as the existing smolt transportation program.

On the John Day Reservoir, scientists with the University of Washington have determined that a John Day drawdown would be completely ineffective with the smolt

transportation program in place, because less than 5% of the initial Snake River smolt migration actually pass through the Pool (see Attachment C). Even under the most favorable conditions for a joint Snake River-John Day Pool drawdown, the University researchers concluded that a John Day Pool drawdown would only increase total smolt survival below Bonneville Dam by 1%, at best. But the impacts from loss of fish guidance efficiency at the John Day Project, from an increase to predator concentrations, and from turbine cavitation problems at the McNary project would likely off-set any biological benefits gained from a drawdown.

It is indeed ironic that some representatives from the resource agencies and environmental community—who in the past have expressed great concern about high-risk, high-cost projects—blatantly ignore the clear danger signs surrounding the proposed drawdowns.

Pursuing Biologically and Cost-Effective Salmon Recovery Measures:

Technical evaluations of the smolt transportation program conducted by the National Marine Fisheries Service consistently point toward direct fish benefits for Snake River salmon and steelhead. These evaluations have been well documented within the ESA administrative record, and demonstrate clear improvements for Snake-Columbia River salmon runs over multiple years for multiple stocks. Additional enhancement of the smolt transportation program will prove to be the cornerstone of an effective salmon recovery plan.

Those opposed to the smolt transportation program have primarily pointed toward the declining salmon runs above Lower Granite Dam and surmised that the smolt transportation program is at fault. But in doing so, the program opponents have failed to acknowledge that the production trends for the Snake River stocks have closely followed the overall West Coast production trend for chinook salmon, as well as for trends in other major chinook production basins (see Attachment D.) Snake River chinook production trends are no different than the trends exhibited within other West Coast areas. To ignore these data and suggest instead that the smolt transportation program has led to Snake River chinook declines—despite the evidence to the contrary—is absurd. Such positions have no basis in science or objective analysis.

There are other actions, in addition to enhancing the smolt transportation program that must be undertaken. It will be vitally important for state, federal, and tribal commercial and sport fishery managers to establish specific escapement rates for the Snake River fall chinook. The fish harvesters must confront the need to honor biologically prudent escapement goals, not merely percentage reductions in harvest, if the fall chinook run is to be rebuilt to a viable population size. This will require an unprecedented level of cooperation among U.S. and Canada fish managers, and the Indian tribes of the Zone 6 fishery, within the Lower Columbia River.

Some of our "action items" will need to address biological factors that are presently uncertain and have been the cause of great controversy. It will be necessary to gain a much better understanding of the relationship between flow regimes and smolt survival. In years past, the region has failed to design adequately experiments and collect data to resolve the flow-survival question. *Presently, the best scientific information we have indicates that the biological*

benefits of enhanced flow regimes, if any, would be due to increasing the collection rate of smolts at Lower Granite and Little Goose dams, for transport below the Bonneville Project. The Alliance strongly supports research efforts conducted by NMFS and the Corps that will collect baseline data for analysis, and that will not injure the river-dependent industries and communities.

Is implementation of the Strategy for Salmon on track for timely completion? How well are federal and state agencies coordinating their activities with each other and with the Council to achieve timely implementation?

The deterioration of Columbia River Basin salmon runs occurred over more than a century, and the restoration of the runs will at least require several decades. *The primary federal agencies involved—the Corps of Engineers, Bonneville, and the Bureau of Reclamation—have worked with NMFS to meet fully the Section 7 consultation requirements of the Endangered Species Act. The agencies have put into place substantial flow regimes in 1992 and 1993 as requested; the costs of flows and other salmon mitigation actions has now reached about \$300 million annually, a dramatic increase over the past few years. As well, the federal agencies have enacted other measures to comply with habitat restoration concerns.*

However, while the hydropower system operators have taken aggressive measures at the request of NMFS, it is unclear whether progress is being made by federal and state agencies to deal effectively with ocean and in-river harvest management. *The inability to make significant harvest reductions—based on predesignated escapement goals at the Lower Granite Dam—will continue to detract from the ability to rebuild Snake River fall chinook runs. Certainly, the harvest issue requires more effort by the responsible state and federal agencies, and the tribes.*

Bonneville asserts that its current financial condition will prevent or delay full implementation of the Council's fish and wildlife program. What measures can Bonneville take to ensure more stable funding for the Council's fish and wildlife programs, given its wide swings in revenues?

The issue here is not one of stable funding by Bonneville. The federal power agency has in the past, currently is in the present, and will be in the future committing hundreds-of-millions of dollars each year to protecting and enhancing fish and wildlife resources. The issue is setting priorities for the dollars being spent.

The Council's recent concern about the fish and wildlife program's funding level should draw attention to their lack of setting priorities. Several of the items included within the Council's program are not on a "critical path" for implementation given the emphasis that must be placed on ESA-related actions. During the Council's "Phase II" review process, the Bonneville Administrator requested the Council to set funding priorities, and the Council disregarded the request.

What can be done to facilitate water conservation and other changes in regional water management to provide increased flows for power production and salmon recovery?

In general, the Alliance membership will support pragmatic regional efforts to encourage water conservation. But the foundation for meaningful water conservation measures must rest on thorough technical and economic analyses.

For water conservation activities, a "one size fits all" philosophy is incorrect. Conservation actions must be tailored to the needs of individual subbasins within the Columbia-Snake river drainage area. Basin geography and hydrology will dictate the available water "savings" or "shifting" where storage capability exists. Consequently, the value of water saving practices needs to be evaluated on a Basin-by-Basin approach.

Most irrigators will adopt new water saving technologies during normal technology change cycles or if the payback period merits immediate capital improvements. As such, the adoption of water conservation measures depends on an economically healthy irrigated agriculture or the financial incentives available to irrigators.

We also would note that water efficiency programs that are designed and implemented under local water districts or utilities will greatly facilitate measure application. Local control and acceptance is a key factor for implementation.

Are existing institutions and institutional arrangements at the state and federal level adequate to implement salmon recovery plans? What improvements should be made to ensure better regional coordination among the many federal, state, tribal and private entities that must work together to achieve salmon restoration? In particular, the following alternatives have been suggested for better implementing salmon restoration plans. Please comment on each:

a) Providing additional public involvement in existing federal processes, including review of annual operations.

Throughout the salmon recovery planning process, the Council, the Army Corps of Engineers, Bonneville, and other federal and state agencies and officials have held numerous public information meetings and hearings, all available to the general public and special interest groups. In addition, these agencies and officials have made numerous requests for written public comments, and held numerous workshops to receive special technical information developed by agencies, industry, and special interest groups.

It is difficult to perceive how any specific interest group or member of the general public could suggest that ample opportunities to express comments or recommendations have not occurred. If anything, the agencies involved should be praised for having provided a high level of public access to the planning process.

b) Changing the membership, structure, or authorities of the Council.

The Alliance holds the position that state governors should retain the right to appoint Council members, to represent their states. The Alliance will always encourage state governors to gauge Council appointments on merit and competence and the ability to present energy and natural resource positions that would actually be supported by a majority of their constituents.

The Alliance membership perceives little value in attempting to "re-structure" the Council at the present time. The Council members will best serve their states and the region if they place primary attention on the technical, environmental, and economic benefits and costs of recovery measures, rather than become engaged in resource planning by political edict.

The existing Council authority should not be extended beyond its current form. To do so implies that the major responsibilities of the region's federal resource agencies should be negated, and that the Council would somehow "do a better job" than the resource agencies presently involved. The Council's reluctance to set priorities for fish and wildlife projects and expenditures strongly suggests that added authority would not bring with it added accountability or a greater probability of success for meeting the salmon recovery objective. What it does imply is the creation of more bureaucracy, less direct accountability for the actions being taken, and higher levels of uncontrolled spending for fewer meaningful fish and wildlife benefits.

c) Incorporating salmon recovery measures into the Pacific Northwest Coordinating Agreement.

Hydro system management actions for salmon mitigation/recovery actions--whether implemented by federal and non-federal project operators--are directly integrated into the annual operating regime specified by the Pacific Northwest Coordination Agreement.

The Coordination Agreement does not determine federal or non-federal project management policies for fish-related flow releases. It serves as the technical, operational agreement among hydro project operators to coordinate project operations, based on available water resources, as dictated by the annual water run-off and policy directives.

Because the "end-effect" of management policies are already a direct factor within the Coordinating Agreement annual operations, the "need" underlying this question would appear to be satisfied.

d) Adopting a new agreement or creating a new regional entity among BPA, the Corps of Engineers, the Bureau of Reclamation, the Council and other to administer annual river operations.

Raising the prospect of creating a "new regional entity" begs several questions. For

example, are meaningful salmon recovery actions currently being hampered by the existing institutional/agency structures and relationship; is the real issue for some of the participants engaged in the salmon recovery issue simply "control" over the hydro system for the sake of control; would a "new regional entity" operate or take actions significantly different from the region's current institutional arrangement; and is the overriding factor really the institutional structure for decision making and action?

While the answers to these questions may lead to some insightful observations about regional politics, they will not substantiate a need to create a "new regional entity." *The work currently being pursued by the federal hydro system agencies displays a concern for both immediacy and selecting recovery measures that will have long-term benefits for Columbia River Basin salmon runs.*

The region's federal, hydroelectric resource managers have taken significant actions over the past two years directly tied to salmon recovery efforts and conducted extensive recovery measure evaluations, both of which are in full compliance with Endangered Species Act requirements (Section 7 consultations). *Today, these same agencies are prepared to move forward with the actions recommended by the National Marine Fisheries Service Salmon Recovery Team. It would be politically naive or technically inexperienced to conclude that these agencies have failed to act or have acted with impropriety.*

- e) Transferring a lump sum in fish and wildlife funds from the BPA to fish and wildlife agencies to be administered separately by those agencies for salmon recovery, while providing accountability for the results of the work funded.

Providing a fixed entitlement to the fish and wildlife agencies would ignore the key purpose for Bonneville's hydro system responsibilities for fish and wildlife mitigation, and would guarantee that no agency accountability would follow the use of the funds.

First, the objective for hydro system responsibility is to identify those impacts directly caused by hydro system operations and provide appropriate mitigation. This requires that Bonneville "target" its mitigation actions toward the source of the need for mitigation. Allocating a fixed entitlement to resource agencies significantly moves away from "targeting" hydro system caused impacts; the agencies will have their own prerogatives for funding priorities, some of which will have little to do with hydropower mitigation.

Second, by simply moving to an entitlement fund for the resource agencies, the need to match funding resources to the areas that will foster the greatest benefits is no longer a consideration. Within the resource agencies, the mid-level managers will readily adopt an attitude of: "how can I get some of that Bonneville money to fund my programs and projects?"

An entitlement program would be among the least productive alternatives available to the House committee. If implementing meaningful salmon recovery measures is the stated objective,

then entitlement funding would promote agency behavior 180 degrees off the mark.

f) Legislatively creating a new entity or designating an existing agency with authority to mandate salmon recovery actions.

The Alliance's position on this issue is predominantly stated within our response to (d) above. However, the Alliance would further recommend that the Committee resist the temptation to "do something" solely for the purpose of appearing to be "doing something." It seems highly unlikely to the Alliance membership that a new regional entity, or "super-agency," would have carried through initial recovery actions much differently than what has occurred under existing ESA Section 7 consultations.

Attachments:

- A. Executive Summary, "The Path Toward Cost-Effectiveness."
- B. Snake River and John Day Reservoirs Environmental and Economic Impact Summaries.
- C. Technical Memorandum, "John Day Pool Drawdown Biological Benefits."
- D. Technical Memorandum, "Review of Transportation Studies."

ATTACHMENT A

**Northwest Irrigation Utilities**

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October 21, 1992

Dr. Don Bevan, Chair
NMFS Salmon Recovery Team
College of Oceans and Fisheries Sciences
Dean's Office, Henderson Hall 557
University of Washington HN-15
Seattle, WA 98195

Dear Dr. Bevan:

The enclosed working paper, "The Path Toward Cost-Effectiveness," represents continued work by NIU to bring fundamental resource economics methods to bear on the salmon recovery issue.

The paper analyzes the cost-effectiveness—essentially biological effectiveness—of several major salmon recovery alternatives. The cost-effectiveness methodology applied here is the same methodology that was presented to the recovery team in May of this year, and discussed in greater detail with Dr. Crutchfield. The methodology is straightforward and pragmatic, it reduces the uncertainty in assessing fish production and cost estimates, and it is consistent with the objectives of the recovery team.

You will note that the analysis findings parallel many of the basic conclusions that you have publicly discussed. This should come as no surprise. Under a cost-effectiveness framework, biological effectiveness and cost-effectiveness go hand-in-hand.

Over the course of the next few months, more data and information will be available to modify and improve some of the economic and biological estimates contained within the paper (as well as different alternative configurations). Nevertheless, the basic direction of the findings within the paper is unlikely to change significantly.

Upon your request, I would be glad to discuss this work directly with you or with the full salmon recovery team.

Respectfully,

A handwritten signature in dark ink, appearing to read "Darryll Olsen", written over a horizontal line.

Darryll Olsen, Ph.D.
Regional Planner/Resource Economist

THE PATH TOWARD
COST-EFFECTIVENESS

*A Working Paper Analyzing the Cost-Effectiveness
of Major Salmon Recovery Alternatives*

By

Darryll Olsen, Ph.D.
Regional Planner/Resource Economist
Northwest Irrigation Utilities
Portland, Oregon

October 1992

THE PATH TOWARD COST-EFFECTIVENESS
A Working Paper Analyzing the Cost-Effectiveness
of Major Salmon Recovery Alternatives
Executive Summary

The economic soundness of salmon recovery alternatives will be given much closer scrutiny, as the National Marine Fisheries Service (NMFS) salmon recovery team, other federal and state agencies, and utility interests introduce their recovery plans to the region. These plans are being prepared in response to Idaho sockeye, fall chinook, and spring and summer chinook being listed as "threatened or endangered" under the Endangered Species Act (ESA).

The primary contribution of resource economics toward an evaluation of salmon recovery alternatives is to determine action priorities or rank through cost-effectiveness analysis. This approach will ensure that the highest level of biological effectiveness is achieved for each recovery dollar spent. The cost-effectiveness analysis approach is directly applicable to actions like ESA salmon recovery measures, where the costs of various measures need to be compared, but the economic value of fisheries benefits is not being considered as part of the decision criteria; fish production is the benefit yardstick, not dollars. Cost-effectiveness analysis is *not* benefit-cost analysis.

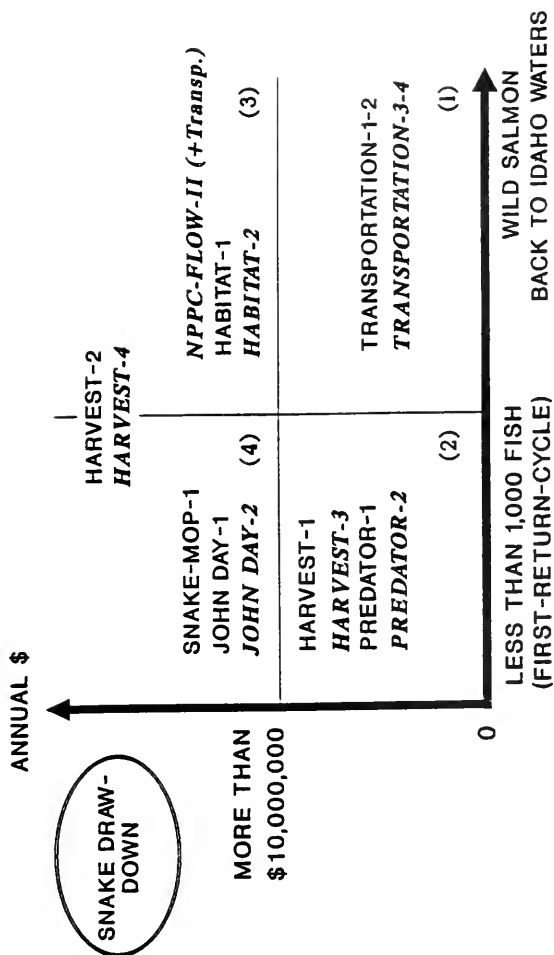
Methodological Approach

Estimates of fish benefit numbers, stemming from different recovery actions, are derived from life-cycle models. The models are composed of survival rate calculations for different life stages and physical passage points during fish out-migration and return migration, within the river-to-ocean-to-river system. They incorporate fundamental system features, such as stages of high or low fish abundance or survival rates, and reveal the points of "large and small" fish numbers.

The recovery alternatives' economic costs include estimates of the direct net costs to all economic sectors affected by alternative implementation. To be consistent in making economic costs comparisons, a national, direct net economic cost method is appropriate and recommended by the National Marine Fisheries Service (NMFS) Economics Technical Committee.

Figure 1 portrays a "quadrant level" approach to cost-effectiveness analysis (low-water year alternatives are noted in *italics*). By using this approach, the range of uncertainty underlying fish benefits or economic costs, for cost-effectiveness ranking, can be substantially minimized. An alternative's fish benefits and economic costs fall within one of the four "quadrants" or cost-effectiveness ranks. Quadrant 1 holds the most cost-effective alternatives, while quadrant 4 depicts the least cost-effective alternatives. The alternatives that fall within quadrants 2 and 3 are within a comparable--through broad--cost-effectiveness range (dollars per fish), but quadrant 2 measures have a lower total cost. The Figure 1 analysis further limits the uncertainty of biological benefit estimates by focusing on the first-return cycle, instead of attempting to "forecast" multiple return cycles.

FIGURE 1. COST-EFFECTIVENESS ANALYSIS
RECOVERY MEASURE MARGINAL BENEFITS/COSTS
(QUADRANT RANKS 1,2,3,4)



Using the "quadrant level" approach, a wide range of alternatives can be compared under low and average water conditions: smolt transportation improvements (TRANSPORTATION-1-4); in-river (HARVEST-1-3) and ocean (HARVEST-2-4) commercial harvest restrictions; reservoir drawdown strategies (SNAKE DRAWDOWN and JOHN DAY-1-2); flow augmentation strategies (NPPC-FLOW-II); predator control programs (PREDATOR-1-2); and habitat management improvements (HABITAT-1-2).

Key Findings and Discussion

The most cost-effective salmon recovery alternatives are estimated to be transportation improvements, in-river commercial harvest restrictions, and predator control programs. A "mid-range" set of alternatives would likely include several features, though varying levels of uncertainty surround these measures. For example, flow augmentation--if effective, and estimated to provide additional transportation benefits in the Lower Snake River--would fall within this mid-range cost-effectiveness level. Though highly sensitive to several variables, ocean commercial harvest restrictions would generally fall within the mid-range. Also, when reviewed across an aggregated industrial land-use perspective, habitat improvements would enter mid-range cost-effectiveness levels (industrial land uses need further disaggregation for a more detailed cost-effectiveness ranking).

Drawdown alternatives would offer the least viable, least cost-effective measures to be included within a salmon recovery plan. The critical smolt survival rate assumptions ("critical assumptions") necessary for the biological effectiveness of a Snake River reservoir drawdown to near spillway crest are highly improbable, rendering it a poor candidate to pass any cost-effectiveness review. Nor is drawdown of the John Day Reservoir to minimum operating pool (MOP) a cost-effective alternative, given its relatively low fish benefit versus economic costs.

Questions are often asked about likely recovery program costs on a per returning adult salmon basis. The recovery alternatives' cost-effectiveness range varies greatly. Based on a cost-effectiveness index of annual dollars (1990\$) per adult fish return to Idaho waters for the first-return cycle, transportation improvements would be in the hundreds-of-dollars per fish range; in-river commercial harvest restrictions in the low tens-of-thousands-of-dollars per fish range (along with other measures); and the drawdown of the John Day Pool to MOP would likely be in the hundreds-of-thousands-of dollars per fish range. Because the Snake River reservoir drawdown to near spillway crest would likely fail to equal or exceed fish benefit numbers under the existing smolt transportation program, it is designated as "off the chart" from a cost-effectiveness perspective.

While the analysis presented here allows for a better understanding of the "path toward cost-effectiveness" for salmon recovery measures, it should not be considered as either all-inclusive or without need for further review and work. The objective is to improve an understanding of the path ahead for securing high quality, prudent salmon recovery measures.

ATTACHMENT B

SNAKE RIVER RESERVOIR DRAWDOWNS ENVIRONMENTAL AND ECONOMIC IMPACTS

- ▶ Proposals to drawdown the Snake River Reservoirs to near spillway crest operations are currently being reviewed. If enacted, the Snake River Reservoir drawdowns would lead to significant environmental and economic impacts, with great uncertainty for gaining any weak stock salmon benefits.
- ▶ Estimated biological benefits of drawdowns:
 - Under low flow conditions, researchers with the University of Washington, the Northwest Power Planning Council, and the Northwest Irrigation Utilities all concluded that any conceivable benefits from a drawdown would be less than the fish benefits derived from the existing smolt transportation program.
 - Researchers caution that a drawdown would likely incur several critical problems:
 - High rates of predator concentrations affecting reservoir passage.
 - Decreased fish guidance efficiency for turbine passage.
 - High levels of gas super-saturation.
 - Latent smolt mortality below Bonneville Dam due to the effects of cumulative project passage.
 - Additional stress for adult return migrations and project passage.
 - These critical problems make drawdowns a high-risk, low-biological benefit option.
- ▶ Estimated Environmental Impacts:
 - A drawdown would have significant impacts to existing wetlands and natural habitat, and to resident fish and wildlife.
- ▶ Estimated Economic Costs:
 - Economic costs would be borne by: hydropower, irrigated agriculture, river commerce and navigation, recreation, and local communities.
 - The capital costs for project modifications would likely be in the \$2-5 billion range.
 - A lower range estimate of the annual direct net costs to the region would about \$175 million.
- ▶ Implementing a Drawdown Action:
 - It would take several years to implement a Snake River Reservoir drawdown. Army Corps of Engineer estimates range from seven to fourteen years for project modifications.

**A JOHN DAY POOL DRAWDOWN
ENVIRONMENTAL AND ECONOMIC IMPACTS**

- ▶ A proposal to drawdown the John Day Pool from 1992 operations (elevation 262.5-263.5) to minimum operating pool (elevation 257) is currently being reviewed. If enacted, a John Day Pool drawdown would offer very limited fish benefits, but it would create significant environmental and economic costs.
- ▶ Estimated biological benefits of drawdown:
 - With flows at 200 kcfs, water particle travel time would be reduced by .6 days; at 100 kcfs, water particle travel time would be reduced by 1.2 days.
 - 1989 and 1990 smolt travel time data suggest that higher flow regime levels--in the 200 to 300 kcfs range--do not substantially reduce smolt travel time through the John Day Pool, a reduction of about 1 day.
 - Under optimal salmon recovery plan conditions and with high survival rate assumptions, a John Day Pool drawdown would produce less than an additional 100 wild adult salmon returning to Idaho waters (one complete salmon life-cycle).
- ▶ Estimated environmental impacts of drawdown:
 - Fish and wildlife habitat impacts include: existing sloughs, backwater, and wetlands desiccated (including Umatilla National Wildlife Refuge); resident and anadromous fish rearing and feeding habitat; and benthic productivity.
 - Potential impacts to aquifer levels, water availability for the Umatilla and Irrigon Fish Hatcheries, and potential water quality impacts.
- ▶ Estimated economic impacts:
 - Impacts to hydropower production; irrigation pumping stations; navigation access channels/delay in lock passage; water supply mitigation; fish and wildlife mitigation; and recreation site mitigation/loss.
 - Estimated costs: approximately \$10,000,000 per year (annual dollars).
 - Estimated cost range per returning adult wild salmon back to Idaho waters: \$100,000 to \$300,000 per fish (one complete optimal life-cycle, based on annualized costs).
- ▶ Economic analysis identifies John Day Pool drawdown as one of the least cost-effective salmon recovery measures.

Data Sources: Army Corps of Engineers
Northwest Irrigation Utilities/PNUCC

ATTACHMENT C



Northwest Irrigation Utilities

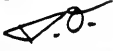
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TECHNICAL MEMORANDUM**DATE:** July 26, 1993

TO: Dr. Dan Huppert, NMFS Coordinator, NMFS Economics Technical Committee (ETC)
 NMFS Economics Technical Committee (ETC)
 Dr. Don Bevan, Chairman, NMFS Salmon Recovery Team
 Gary Smith, Deputy Director, NMFS Seattle
 ESA Administrative Record

FROM: Darryll Olsen, Ph.D. 
 Regional Planner/Resource Economist
 NMFS ETC Member

SUBJECT: Review of Technical Evaluations Related to a Drawdown of the John Day Pool from Minimum Irrigation Pool (Elevation 262.5-263.5) to Minimum Operating Pool (Elevation 257)

The following material summarizes some of the recent biological and economic studies evaluating a change in Columbia River system operations, to implement a John Day Pool drawdown. It will be important for the NMFS Economics Technical Committee (ETC) to be aware of several of the key assumptions and findings contained within these studies, as the ETC proceeds with its modelling and cost estimation work for recover measure cost-effectiveness analyses.

Life-cycle model estimates of the biological effectiveness for a John Day Pool drawdown indicate that very little, if any, benefit would be obtained for the Snake River salmon stocks.

Biological benefit estimates developed by Anderson (1993a) for a drawdown of the John Day Pool indicate that either: 1) no improvement to total smolt survival below Bonneville Dam would exist; or 2) survival improvements would be very small and only exist under optimal assumptions for both Snake River and John Day Pool drawdown conditions (see Table 1).

For example, with the existing smolt transportation program in place, less than 5% of the spring chinook, Snake-Columbia smolt migration actually passes through the John Day

**TABLE 1. SUMMARY OF CRISP 1.4 MODEL ANALYSES
FOR IMPLEMENTATION OF A JOHN DAY POOL DRAWDOWN**

Snake River Spring Chinook <u>CRISP 1.4 Model Operation Conditions</u>	John Day Pool Operations Change* Elevation 262.5 (Minimum Irrigation Pool) <u>to Elevation 257 (Minimum Operating Pool)</u>
Existing Smolt Transportation Program in Place, 1993 Operations Scenario (About 2% of the Snake-Columbia River Smolt Migration Passes Through the John Day Pool) Average Water Conditions.	
<i>Total Percentage Increase in Smolt Survival Below Bonneville Dam</i>	<i><1%</i>
Draw Down to Spillway on 4 Snake Reservoirs/Average Water Conditions/No Smolt Transportation**	
<i>Total Percentage Increase in Smolt Survival Below Bonneville Dam with:</i>	<i><1%</i>
1) FGE Reduction at John Day Dam, 70% to 50%	
2) No Increase in Predator Concentrations or Other Mortality Factors	
<i>Total Percentage Increase in Smolt Survival Below Bonneville Dam with:</i>	<i>1%</i>
1) No FGE Reduction at John Day Dam (Dam Intake Screen Modifications Successful)	
2) No Increase in Predator Concentrations or Other Mortality Factors	

Source: Personal Communication with Jim Anderson, Center for Quantitative Sciences—Dept. of Fisheries, University of Washington, July 20, 1993, CRISP.1.4 Model Analyses for John Day Pool Drawdown Operations.

* Minimum Operating Pool (MOP) represents a 12 foot drawdown elevation from full pool operations.

** Critical assumptions for the Snake River drawdown scenario include low smolt mortality rates for Snake-Columbia River reservoir/project passage, and no latent mortality for smolts below Bonneville Dam due to the effects of cumulative reservoir/project passage.

Pool. As such, a John Day Pool drawdown would increase the total percent smolt survival below Bonneville Dam by less than 1%. With the smolt transportation program removed, and with fully optimal assumptions for smolt survival under a Snake River drawdown scenario (a highly unlikely condition), a John Day Pool drawdown would increase total smolt survival below Bonneville Dam by about 1%. But if existing fish guidance efficiency (FGE) levels for the John Day Project decrease and smolt predator concentrations increase within the reservoir (a likely condition), a John Day Pool drawdown would either have no effect on smolt survival below Bonneville Dam or increase survival by less than 1% (Anderson 1993a). The potential to decrease FGE and increase predator concentrations under pool drawdown conditions has been identified by Weitkamp and Sullivan (1993) and the Army Corps of Engineers (1992), as well.

The modelling work developed by Anderson (1993a), using CRISP 1.4, is consistent with the analysis prepared by the Northwest Irrigation Utilities (NIU), relying on the Idaho Fish Manager spreadsheet model (Olsen 1992). In the modelling work prepared by NIU, a John Day Pool drawdown was evaluated with: 1) the existing transportation program in place; 2) a comprehensive set of recovery measures being implemented; and 3) optimal smolt survival assumptions for a John Day Pool drawdown (reservoir smolt mortality reduced by 10%). Under this set of fully optimized assumptions, the incremental effect of a John Day Pool drawdown would amount to less than 100 Snake River adult salmon returning to Idaho waters over one complete life-cycle (optimized life-cycle).

Biological benefit estimates derived from a John Day Pool drawdown—at best, about a one percent increase in total smolt survival below Bonneville Dam—are fully dependent on optimal critical assumptions for a Snake River Reservoir drawdown scenario.

As indicated by Anderson (1993a), less than five percent of the initial Snake-Columbia River smolt migration (spring chinook) actually passes through the John Day Pool, with the existing smolt transportation program in place. Consequently, even with optimal assumptions for smolt survival within the John Day Pool—no decrease in fish guidance efficiency at the John Day Project and no increase in smolt predator concentrations—a pool drawdown results in less than a one percent increase in total smolt survival below Bonneville Dam.

If smolt transportation passage is removed, then any positive biological benefits derived from a John Day Pool drawdown are fully dependent on the optimization of the critical assumptions for a "workable" Snake River Reservoir drawdown scenario. The importance of optimal or "best conditions" for the critical assumptions underlying a Snake River drawdown scenario cannot be overstated, and the optimal conditions factor is a fundamental component of the Snake River drawdown analyses conducted by Olsen, Stevenson, and Weitkamp (1992) and by Anderson (1993b).

In effect, the critical assumptions require that a Snake River Reservoir drawdown would have to operate flawlessly, with completely optimal conditions, in order for the drawdown scenario to equal or exceed the salmon benefits obtained from the existing smolt transportation program. This would necessitate that: 1) there would be no improvement in smolt transportation benefit ratios over time; 2) there would exist high survival rates for reservoir passage; 3) there would exist high fish guidance efficiency (FGE) levels for project passage; 4) there would be no gas super-saturation or project passage problems; 5) there would be no adult return migration or passage problems; and 6) there would be no latent smolt mortality below Bonneville Dam as a result of cumulative project passage through the Snake-Columbia River system.

The importance of relying on these critical assumptions, and the unlikely probability of their collective occurrence, has been reviewed in detail by Olsen, Stevenson, and Weitkamp (1992), using the Idaho Fish Manager model, calibrated to produce the same results as life-cycle model analyses conducted by the Northwest Power Planning Council staff (Passage Analysis Model). The Council staff reviewed the analysis conducted by Olsen, Stevenson, and Weitkamp (1992) and made the following observations (NPPC 1992):

The [NPPC] analysis did not indicate that the four pool drawdown option can be expected to provide the greatest benefit for Snake River spring chinook. It did indicate that the four pool drawdown option holds potential for increasing survival in the average or better flow years if a number of uncertainties turn out favorably. It also indicates that drawdown would actually lower survival relative to the baseline in lower flow years, based on what we know about transportation...The analysis also showed that drawdown is extremely vulnerable to uncertainty in a number of key factors such as predator control and fish guidance efficiency. The Olsen report [Olsen, Stevenson, Weitkamp 1992] reiterates the conclusions of our analysis regarding drawdown, only stating them much more strongly.

The work by Anderson (1993b) further highlights the need for optimal critical assumptions, in order for a Snake River Reservoir drawdown to be success. Anderson (1993b) concludes that biological benefits from a drawdown are contingent on "there being no adverse affect in drawdowns," and that the biological benefit estimates calculated from a drawdown scenario are highly uncertain.

An existing economic analysis of a John Day Pool drawdown from 262.5-263.5 (minimum irrigation pool) to 257 (minimum operation pool) indicates that this alternative is among the least cost-effective measures available for salmon recovery planning.

The NMFS Economics Technical Committee has reviewed several key methodological factors inherent to an economic analysis of salmon recovery measures, under the

Endangered Species Act (for example, see Olsen and Peters, 1991). Given this review and internal discussion, a clear majority of the NMFS Economics Technical Committee has consistently stressed that recovery measure evaluation should be based on each measure's incremental biological benefits and economic costs, within a comprehensive recovery plan. The biological benefits for key recovery measures should be based on adult returns back to Idaho waters; no other measure will lead to a technically correct cost-effectiveness analysis and least-cost salmon recovery plan.

Given this methodological framework, the cost-effectiveness of a John Day Pool drawdown measure should be evaluated according to its biological benefits and economic costs relative to other recovery measures—such as harvest restrictions, smolt transportation improvements, predator control actions, and other alternatives. A John Day Pool drawdown would be cost-effective if, and only if, it provides a greater number of returning adult salmon back to Idaho waters per recovery dollar spent, when compared to other major recovery measures.

The NIU has made an initial estimate of the cost-effectiveness of a John Day Pool drawdown from elevation 262.5-263.5 (minimum operating pool) to 257 (minimum operating pool). This estimate was included within the study provided to the ETC for their review (Olsen 1992). This work relies on life-cycle modelling estimates derived from the Idaho Fish Manager spreadsheet model, calibrated to reflect system passage survival rates similar to the NPPC's PAM model and the CRISP 1.0 series model, and includes ocean and in-river harvest/mortality rates developed by or for state and federal resource agencies.

The study's economic cost estimates are primarily based on estimates prepared by the ETC, the Corps of Engineers, PNUCC, and other agency/industry consultants and reports. The costs cover impacts to hydropower, irrigation pump modifications, recreation, and preliminary estimates for Umatilla Fish Hatchery pump modifications, and mitigation costs for the Umatilla Wildlife Reserve.

As noted above by Anderson (1993a), a John Day Pool drawdown produces very small fish benefits, if any. This observation was further borne out within the NIU analysis (Olsen 1992), even under conditions of optimal smolt survival assumptions.

But the economic costs are not inconsequential. A drawdown cost would likely be in the \$9,000,000 to \$14,000,000 per year range (annualized dollars using a 40/15-year amortization period for federal/private capital expenditures, with a 4% real discount rate—ETC standard assumptions). This cost range was discussed in detail with the Corps of Engineers' economists working on the System Configuration Study (SCS) and the System Operation Review (SOR), and they indicated that this cost range is a reasonable estimate and consistent with their own cost estimates (Economics Branch Staff 1992).

Using a cost-effectiveness index of annualized dollars per year for the first adult return

cycle, and assuming optimal conditions for a comprehensive salmon recovery planning effort, the costs of a John Day Pool drawdown would be in the hundreds-of-thousands-of-dollars per fish range. By comparison, this drawdown cost per fish would exceed the costs of moderate smolt transportation improvements by about a factor of 100 or greater. Also, the pool drawdown option would be substantially less cost-effective than other measures examined within the analysis, such as in-river harvest restrictions.

The existing biological and economic analyses do not support a priority status, or action at this time, for a John Day Pool drawdown within a salmon recovery plan or broad Columbia Basin mitigation effort.

The above analyses strongly indicate that a John Day Pool drawdown alternative is neither a biologically effective nor cost-effective measure when compared to other key measures, within a comprehensive recovery plan or broad-based, Columbia Basin mitigation strategy. The drawdown measure's poor cost-effectiveness ranking—reflecting low fish benefits relative to economic costs—further indicates that other recovery measures should definitely receive priority for implementation within a recovery plan. Simply stated, placing any priority on implementing a John Day Pool drawdown, at this time, is ill-founded and inconsistent with the objective to pursue expediently meaningful salmon recovery actions.

During the next few months, the ETC will be reviewing the cost-effectiveness of a John Day Drawdown in further detail. This in-depth technical review will provide an opportunity to verify the modelling assumptions and initial findings discussed above.

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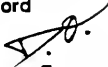
cc: Dr. Jim Anderson, Center for Quantitative Sciences—School of Fisheries, UW
 Dr. George Hinman, Chairman, Dept. of Environmental Science and Regional Planning, WSU.
 Dr. Walter Butcher, Dept. of Agricultural Economics, WSU

ATTACHMENT D

TECHNICAL MEMORANDUM

DATE: February 25, 1993

TO: Rollie Schmitten, NMFS Seattle
Gary Smith, NMFS Seattle
ESA Administrative Record

FROM: Darryll Olsen, Ph.D. 
Regional Planner/Resource Economist
Northwest Irrigation Utilities

Don Weitkamp, Ph.D.
Fisheries Biologist
Parametrix, Inc.

Subject: Comments on the CBFWA Review of Transportation Studies
Memorandum/Report, December 31, 1993, and Related Issues

General Overview Comments:

Presenting Technical Issues for Open Review:

CBFWA biologists and analysts should be praised for formally presenting their technical concerns toward the smolt transportation studies and program. By doing so, the technical merits of their assertions are available for general review and comment. Previously, no formal report existed that concisely stated the CBFWA members' objections to the smolt transportation studies and program.

CBFWA Review Does Not Discredit Transportation Program:

The smolt transportation review study released by CBFWA does not support the conclusion that wild Idaho salmon stocks have suffered under the Corps of Engineers' barge transportation program. The CBFWA review study is described by its authors, "the Review Group," as a " cursory review of the data." The Review Group—which did not include key NMFS scientists—raised several questions about the analysis underlying the salmon transport benefit ratios, but noted that "the Review Group did not have the time to conduct any independent statistical tests." As such, while the review study may consider pertinent research questions, its value toward providing "hard facts" for salmon recovery planning is extremely limited, at best.

For the Snake River evaluations, the CBFWA study focused on the spring/summer chinook transportation evaluations for smolt releases during 1986 and 1989, with subsequent adult returns. These studies indicate that the average ratio of transport to non-transport salmon was between 1.6 to 2.5. Or stated differently, the NMFS estimates that transportation of juvenile salmon provides between 60% to 150% more adult returns, back to Lower Granite Dam, than fish that remain in the river and pass through the Snake-Columbia river hydro projects and reservoirs. Evaluations for other stocks (steelhead), over the years of research, display similar positive transportation benefits.

The CBFWA Review group analyzed very small data samples for "tagged" chinook salmon in upriver areas above Lower Granite Dam, with most return fish collected at hatchery sites. Their findings suggest that hatchery fish did respond positively to transportation, but limited samples for wild fish suggested no direct transportation benefits. The key problem surrounding the CBFWA Review Group analysis stems from sample size and sampling methodology—both of which are unacceptable for a basis to make valid scientific conclusions. To their credit, even the Review Group noted: "NMFS contends that this information [above Lower Granite data samples] is not reliable and should not be used for analysis because sampling was not complete and may be biased."

Specific Technical Comments:

Clarifying Mid-Columbia Versus Snake River Evaluations:

The reviewers—or other parties—use of the Priest Rapids transportation studies to draw any conclusions regarding the Snake River transportation program is totally inappropriate. The Priest Rapids studies, testing experimental procedures, used different transportation techniques than the Snake River evaluations of an operational system.

Inappropriate Marked Release Group Analysis:

In part of the CBFWA review, the Review Group attempts to analyze the transportation data from an approach that is inconsistent with the evaluation studies' intended experimental design. It is highly questionable to analyze individual marked subsets within the treatment and control groups, because recoveries from these individual groups provide sample sizes too small for reliable analysis. The individual, marked subgroups should not be considered as separate treatment/control groups but rather as lots within the complete treatment and control groups—accepting that subgroup variation does exist.

It is recognized that varying conditions do occur across each smolt release group. But given the very small subgroup sample sizes, possessing unknown variation levels across multiple variables, aggregated analysis offers the most acceptable level for interpretation. Until specific variables can be independently measured and larger sample sizes obtained, it would be imprudent to reject the aggregated statistical parameters.

It is worth noting that many of the same aggregation issues surrounding the transportation evaluations are inherent to the smolt travel time-flow regime-survival studies, where aggregation is deemed appropriate by CBFWA member analysts. For example, aggregating daily release group data and using average or median values for weekly (or even annual) comparisons. In effect, by rejecting subgroup aggregation, the CBFWA reviewers give the appearance of adopting a "double standard" for their analyses and technical studies.

Unknown Bias Levels in Upstream Sample Collection:

The Review Group correctly identified that the studies have not separated hatchery fish and wild fish. The techniques employed do not allow separation of these fish at the time they are marked and transported. The reviewers also correctly identified that returns to the dams do not separately measure the effect of transportation or survival to the spawning grounds. The techniques applied within the studies do not provide sufficient numbers of returning adults to reliably assess returns to the spawning grounds (a factor strongly asserted by NMFS scientists). The research designs were never intended to make such observations.

But perhaps of greater importance for analysis purposes is the issue of representative sampling between wild and hatchery fish and sampling procedures. The collection facilities—either hatcheries or upstream survey/trap sites—form the sample frame for the total population of treatment and control fish. If there is not substantial assurance that a representative sample of wild fish are being (or could be) counted at the upstream survey/trap sites, then wild count comparisons to a hatchery collection site (where hatchery numbers are directly concentrated) is meaningless. It is not clear from the CBFWA review whether the criterion for sample representativeness was adequately taken into account.

Unsubstantiated Wild Fish Hypothesis:

Given their analytical approach, the CBFWA Review Group suggest that wild salmon do not survive as well as hatchery fish under transportation, or at least are more unlikely to return to spawning sites. The review report fails to provide either the adequate empirical documentation (given the comments above) or to offer reasonable support from the technical literature to substantiate why wild fish would be less responsive to barge transportation than hatchery fish. Also, it is unclear—or not fully unexplained—why transportation effects would have a greater impact on spawning disorientation for wild fish, as opposed to hatchery fish.

Existing estimates of wild to hatchery fish ratios have varied greatly since the completion of Lower Granite Dam. However, during the period of analysis by the Review Group—1986-1992—wild to hatchery fish ratios based on Lower Granite Dam counts and available wild fish estimates have increased, not declined. In 1985 and 1986 for spring and

summer chinook, the wild fish percentage estimates were approximately 33% and 29%, respectively; in 1991 and 1992, the percentages were estimated to be 55% and 54%, respectively, including wild returns at hatchery (estimates from PNUCC comments on 1992 Biological Assessment, 1992 estimates still under review). These percentage estimates do not lend support to the conclusion that wild chinook salmon are less responsive to barge transportation than hatchery fish.

Failure to Acknowledge Late 1970s Evaluation Studies:

In assessing the effects of transportation on wild chinook salmon stocks, the CBFWA Review Group would benefit from a re-consideration of the barge transportation studies conducted during the late 1970s. The transport benefit ratios for spring chinook salmon for 1978 and 1979 were 8.9 and 3.9, respectively. In 1981, the estimated percentage of wild spring/summer chinook passage above Lower Granite Dam was about 45%; in 1982, 61%; in 1983, 73%; and in 1984, 63%.

In considering this time period, there are no empirical data from which to reach the conclusion that wild fish responded poorly to barge transportation relative to hatchery fish. While the high transport benefit ratios for the late 1970s reflected a harsher in-river system passage than during the 1980s, it also could be posited that the wild chinook salmon responded positively to the transportation system.

Failure to Acknowledge Realistic Transportation Improvements:

Within any broad evaluation of the existing transportation program, it is imperative that improvements and enhancements are fully considered. Low-capital, first-stage enhancements to the program would include: 1) expansion of the current barge fleet to reduce smolt holding time and expand collection operations; 2) general improvements to handling conditions and facilities; and 3) the application of new release strategies below Bonneville Dam. With very low risk involved, it can be reasonably assumed that each of these measures should contribute to an increase in transport benefit ratios.

Life-cycle model estimates indicate that modest improvements to survival rates for transported fish—such as a 10% survival rate increase for transported fish below Bonneville Dam, taking into account latent mortality—would have a substantial effect on increased wild adult returns to Idaho waters (with all other mortality factors assumed to be constant),

Recognition of West Coast Salmon Production Area Trends:

Some resource managers and interested parties have incorrectly assumed that raw score counts of wild fish above Lower Granite Dam can be used to assess the "success or failure" of the smolt transportation program. This is a completely misleading interpretation of fish survival and production factors related to the Snake-Columbia River system.

Recent evaluations of West Coast chinook salmon production indicate that Snake River spring chinook escapement has generally tracked overall West Coast production, as well as production in several other river basins. Similar production trends can be observed between the Snake River spring chinook salmon run and aggregated West Coast production, particularly during the period of the 1980s. As illustrated within Figure 1, the Snake River escapement above Lower Granite Dam has matched very closely the rate of change in overall West Coast production estimates. Also, the overall Snake River spring chinook escapement trend follows similar production trends observed in other West Coast river basins. Existing data indicate that these West Coast production trends have affected hatchery and wild fish runs alike.

As such, any attempt to evaluate the Snake River smolt transportation program based on raw score escapement/production estimates is fundamentally flawed.

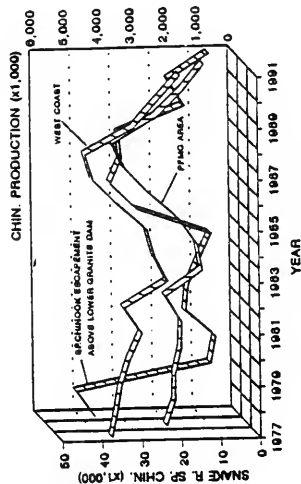
Salmon Speculation Versus Salmon Science:

The above comments suggest that science has much to offer, as the region pursues the difficult objective of salmon recovery. There are recovery measures, such as improvements to smolt transportation, that have a much greater scientific foundation than others and pose much fewer risks to the resource. Also, there are factors well beyond the control of a fresh water river system that must be recognized. It is important for resource managers and decision makers to make every effort to place speculation in its proper perspective and to acknowledge salmon recovery alternatives that best pass the test of scientific scrutiny.

cc: Bruce Lovellin, Exec. Dir., NIU
 NIU Board
 AWUF Board
 NMFS Salmon Recovery Team
 Stan Grace/Dr. Tom Trulove, NPPC
 Lt. Col. Robert Volz, Army Corps
 Dr. John Donaldson, Exec. Dir., CBFWA
 Fred Olney, U.S. Fish & Wildlife Service
 Distribution

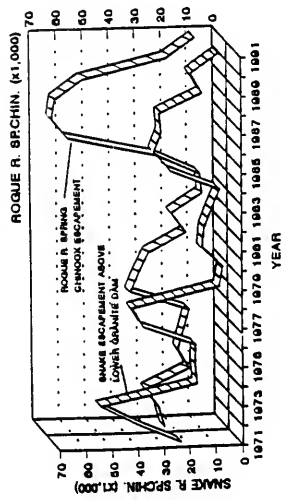
FIGURE 1.

FIGURE 1a. SNAKE R. ESCAPEMENT VERSUS ESTIMATED WEST COAST/PFMC AGGREGATE PRODUCTION



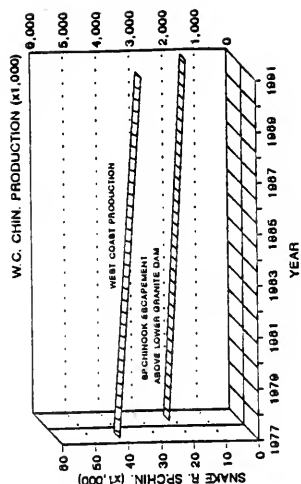
□ WEST COAST □ PFMC AREA □ SPCHIN.

FIGURE 1c. SNAKE R. ESCAPEMENT VERSUS ROGUE R. SPRING CIIINOOK ESCAPEMENT



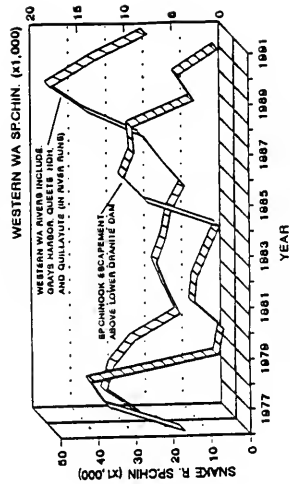
□ SNAKE R. SPCHIN. □ ROGUE R. SPCHIN.

FIGURE 1b. SNAKE R. ESCAPEMENT VERSUS ESTIMATED WEST COAST PRODUCTION



□ WEST COAST □ SPCHIN.

FIGURE 1d. SNAKE R. ESCAPEMENT VERSUS WESTERN WA COMBINED IN-RIVER RUNS



□ SNAKE R. SPCHIN. □ WESTERN WA SPCHIN.

STATEMENT OF ED CHANEY

Mr. CHANEY. Thank you for the opportunity to testify today before the task force. My name is Ed Chaney. I am Executive Director of the Northwest Resource Information Center, and I regret to say I have spent going on 30 years dealing with the issue that is before the task force.

I tried to get here late so I would not have to listen again to the happy face put on this disaster by the agencies, but unfortunately I got in on it. I would like to talk about the dark side of that happy face a little bit.

Listening to the agencies, you would not know that Congress instructed the Corps to build these projects in a way that protected fish and dependent Northwest economies back in the 1940s. You would not know it has been 13 years since when that failed, that Congress declared an emergency. That is the Congress' term.

You would know that the Corps now says, well, it may take us another 15 or 20 years, who knows, depending on what more studies will yet reveal. Meanwhile, thousands and thousands of people's lives have been destroyed; communities, economies have been devastated; billions of dollars have been lost to the region and the Nation. And Bonneville and the Corps have done unto the Northwest tribes what Buffalo Bill and the boys did to the Great Plains tribes when they wiped out the buffalo.

It all sounds so good when you hear these agencies talking about it, but the problem is there are real people out there who are being hurt and what we get is more promises that one of these days, folks, just hang in there, if we have a little more process, a few more committees, and some more studies, we will be able to prove that Darwin was onto something, that salmon need rivers instead of lakes in order to survive.

Thirteen years after the passage of the Northwest Power Act, frankly, things are worse than they were when the Act was passed. As an insider who has lived with this for those 13 years, I have got some fairly strong opinions about why we inherited the mess that we have.

One very important thing—and I am going to focus most of my comments on Bonneville—Bonneville and PNUCC which represents the utilities and others, for the first decade of the Power Act, basically cowed the Northwest Power Council and kept it from dealing with the pivotal issue of downstream migrant mortality that really provided the initial impetus for the fish and wildlife provisions of the Power Act.

Finally, under enormous pressure and faced with a decade of failure, the Council did adopt the only measure that will rationally deal with that, and that is to return the operations of these mainstem reservoirs to some semblance of a river, which I think Darwin would appreciate, so that we can reduce migrant survival to a tolerable level. Bonneville and PNUCC of course have responded with doomsday predictions that the lights are going to go out and the little old ladies in the I-5 corridor are going to be at the risk of freezing to death during the next Arctic chill event and it goes on and on, all of which of course is nonsense.

Bonneville has basically set out a deliberate strategy to kind of co-opt the program. Once they saw they were going to have to have

fish and wildlife provisions in order to get what they wanted in the Power Act, and they have been quite successful at that. They have used its power of the purse strings to pick and choose among the things that it likes and unfortunately it has used them very effectively to intimidate the region's fishery agencies and tribes to buy their acquiescence, literally, to its political agenda.

The most discouraging thing, the most distressing thing, is to see the propaganda campaign that Bonneville has put on, really kind of treating the people of the Northwest like the CIA would treat the citizens of some Third World nation, that they want to disrupt the political process, because Bonneville sees clearly that the more turmoil there is, the less likely decision-makers are going to focus on the real source of the problem—not the only source of the problem, but the pivotal source of the problem, that is our inability simply to get the fish downstream.

Bonneville also has squandered tens of millions of dollars chasing make-believe salmon poachers and doing, quote-unquote "predator control," creating a costly and redundant fish and wildlife bureaucracy, and frankly cooking the books on the cost of what it is going to cost to solve this problem. Bonneville is great about blaming the weather and salmon recovery for revenue shortfalls actually due to nuclear power plant gambling debts, chronic below-cost power sales, failure to raise rates even to keep pace with inflation, until this recent rate increase. I think one source, I believe Northwest Power Council, suggests Bonneville's rates declined in real terms something like 23 percent prior to the recent rate increases, and egregious subsidies that simply do not comport with fiscal responsibility. When you cannot pay your bills, you have got to quit giving money away.

And then the most distressing thing, of course, as I said earlier, they have really done unto the Northwest tribes and their treaty rights what Buffalo Bill and the boys did by wiping out the buffalo, what it did to the Plains Indians.

We have got a serious economic and environmental disaster. That is obvious, and that is why you are here and that is why we have got seven or eight or ten lawsuits in the federal courts. People have lost faith in the ability of the system to deliver. I think you are right, the tribes have been extraordinarily patient, but one of these days they are simply going to say, well, if our treaty rights are going to be worth anything, we are going to have to do something. And I urge them daily almost to do that, because I fear the system is broken.

We need the Congress' help; we need the President's help. I think we have got all the laws and all the institutions and all that stuff we need. What we do not have is any accountability. The Congress and the President have basically just looked the other way for a long time about what the Council was doing, and let the Council dither away for 10 years. Bonneville is basically out of control, in my view. I think we need this task force's help in examining what is really going on here, what is underlying all this problem. I think we need continuing oversight from the Congress over Bonneville. It needs a firm hand to restore its ethical moorings.

There are some direct things that could be done right away that I think would help. These are kind of arcane, but from the inside

I am convinced they would help. Congress and the President need to take immediate action to eliminate Bonneville's fish and wildlife staff. We need to get Bonneville back in the energy marketing business, that is a job it has not learned how to do yet. It cannot pay its bills; it needs to get out of the fish and wildlife business in order to end the corruption of the political process by Bonneville's control of the purse strings. We need desperately for Bonneville to write one check to fund the approved program measures of the fish and wildlife program and concentrate its energies on running the energy business, which as I have indicated earlier, all the record shows it needs to spend its time focused on what its primary job is.

Until Bonneville is able to demonstrate some fiscal—and in my view ethical—responsibility regarding fulfilling the tribes' treaty rights and complying with the Northwest Power Act's mandates, I shudder to think that the Congress is going to relinquish any control over this agency through these competitive initiatives or, God forbid, this government corporation.

We need more control over this agency, not less.

Thank you.

Mr. DEFAZIO. Thank you. Mr. Godard.

[Prepared statement of Mr. Chaney follows:]

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Testimony of
 Ed Chaney, Executive Director
 Northwest Resource Information Center, Inc.
 Before
 Bonneville Power Administration Task Force
 Peter A. Defazio, Chairman
 Committee on Natural Resources
 U.S. House of Representatives
 At
 Boise, Idaho Field Hearing
 September 24, 1993

Mr. Chairman and members of the Task Force, my name is Ed Chaney, I am Executive Director of the Northwest Resource Information Center, Inc., a nonprofit organization which conducts research and analyses the social, economic and public policy implications of natural resource issues.

I have been professionally involved in Columbia River Basin energy, water and anadromous fish issues for a quarter-century. During that time I participated in crafting the fish and wildlife provisions of the Pacific Northwest Electric Power Planning and Conservation Act of 1980, served on the Northwest Power Planning Council's initial Scientific and Statistical Advisory Committee, and have worked with the Act, the Council and its Fish and Wildlife Program since their inception. I am intimately familiar with the Bonneville Power Administration's activities vis-a-vis salmon and dependent economies prior to 1980 Act, and with Bonneville's response to the Act, to the Council's program, and to the application of the Endangered Species Act to Snake River salmon.

I appreciate the opportunity to testify before the Task Force. It brings long over-due, badly needed, and I hope continuing, congressional scrutiny of the Northwest Power Planning Council's *Strategy for Salmon* in general, and of Bonneville Power Administration's nonresponsiveness to that strategy in particular.

Mr. Chairman, for the most part my remarks today focus on the questions posed in your invitation to testify. I request that you leave the record open for at least two weeks so that I and others may submit additional, more detailed supporting information.

I ask also that you forbear my plain talk before you today; it is an inconvenient and unpopular symptom of going on three decades' experience with what is arguably the greatest man-caused environmental and economic disaster in modern history of the Republic.

First, I want to briefly provide some context within which to respond to the questions posed by the Task Force.

When Congress authorized construction of the federal dams on the main-stem Columbia and Snake Rivers, it explicitly required they be built and operated to protect what then were the world's largest populations of chinook salmon and steelhead and other large, diverse populations of anadromous fish which collectively comprised one of the world's most extraordinary, valuable, perpetually renewable natural resources. That didn't happen.

The Corps of Engineers, in short, screwed up. It dutifully built fish ladders to pass adult fish upstream. It belatedly built fish hatcheries to partially mitigate for the loss of fish habitat drowned behind the dams. All at the cost of hundreds of millions of public dollars. But the Corps failed to provide for getting the resulting juvenile fish downstream.

For decades the Bonneville Power Administration and its pork barrel constituents - amply represented here today [hereinafter collectively referred to as BPNUEC to reflect their ideological fusing] - successfully fought operational changes in the hydrosystem that could ameliorate the fish-killing effects of the Corps' design error.

The result, was the economic extinction and threatened biological extinction of most salmon populations originating in the upper 95% of the Columbia River Basin; and, of course, devastation of salmon dependent economies throughout the Northwest and concomitant loss of billions of dollars to the region and Nation.

In 1980, an exasperated Congress responded with the strong fish protection/restoration language in the Northwest Power Act. Congress declared an "emergency," created the Council and gave it 90 days to develop a plan to mitigate the effects of the Federal Columbia River Power System and restore salmon and related economies.

Among other things, Congress required that fish be treated as coequal partners with other uses of the hydropower system of the region. It included specific statutory language that fish were to be accorded "equitable treatment" with other uses of the hydrosystem. Fish were to be provided streamflows of adequate quality and quantity at and between the federal dams. The time for study was over; the Council was to rely on the best available information, and when faced with uncertainty was to rely heavily on the recommendations of the region's fishery agencies and tribes. The Council was to develop a fish restoration plan, then develop a regional energy plan to fit. Fish restoration would not be subject to a cost-benefit test, but restoration measures must be the "least-cost" way to achieve the same sound biological objective. Fish restoration efforts were to be consistent with the treaty-reserved rights of the region's Indian tribes.

None of the above happened.

Consequently, 13 years into the Act, things are far worse than they were at its passage. Snake River salmon, which provided the impetus for fish protection provisions of the Act, are threatened with extinction; all have been listed under the Endangered Species Act.

--BPNUCC for a decade cowed the Northwest Power Council from dealing substantively with juvenile fish passage at main-stem Snake and Columbia River dams which is the linchpin of salmon recovery. The Council finally was humiliated by its obvious failure and by public pressure into adopting the only rational way of dealing with this pivotal problem - periodically drawing down John Day Reservoir on the lower Columbia and the four lower Snake River reservoirs. BPNUCC responded with renewed doomsday deceptions, and, like their ideological brethren the tobacco lobbyists, resorted to the last refuge of environmental scoundrels by calling for "better science," i.e., more years of study, i.e., delay, in hopeless pursuit of unobtainable absolute scientific certainty.

--Bonneville has used its power over the purse strings to intimidate and cower the region's fishery agencies and tribes; this documentable corruption of fisheries management is unparalleled in Northwest history. Bonneville even politically threatens its sister agency Bureau of Reclamation to keep it in ideological lockstep.

--Bonneville and its pork barrel constituents are using on the Congress and people of the Northwest tactics like the CIA would use to disrupt the political process of some Third World nation. They've spent tens of millions of taxpayer and ratepayer dollars on egregious disinformation and scare tactics designed to dupe and intimidate political decision makers and the public, and worse, to pit citizens against one another, all to create political gridlock over necessary changes in the federal hydrosystem.¹

--Bonneville has squandered tens of millions of dollars: chasing make-believe salmon poachers with the S.S. Cockamamie [Corliss]²; paying for ecologically medieval "predator [squawfish] control;" torturing data until it confesses the results Bonneville wants; creating a costly, redundant fish and wildlife bureaucracy; and cooking the books to inflate the costs of complying with congressional mandates for salmon recovery³ while pathetically blaming the weather and salmon recovery for revenue shortfalls actually due to nuclear power plant gambling debts, below cost power sales,

¹ High-level BPA officials, notably including Deputy Administrator Jack Robertson, persistently regale the public and news media with doomsday predictions, e.g., shutting down the federal hydrosystem, draconian rate increases [you bet!], the prospect of multiple coal-fired and nuclear power plants, increases in pollution and global warming, and that "...the little old ladies in the I-5 corridor could be at risk of being without heat during the next Arctic chill event." The fact that anyone falls for this brand of intellectual flatulence proves the old adage that if you practice to dupe and deceive, tell whoppers, don't mess around at the margin of truthfulness.

² This Bonneville made-for-prime-time special night radar and high-speed pursuit craft-equipped showboat gives hilarious expression to the old adage *"The law locks up both man and woman who steals the goose from off the common, Yet leaves the greater felon loose, who steals the common from the goose."* While Bonneville spends millions to capture a single salmon poacher [or was it two?], National Marine Fisheries Service gives Bonneville and the Corps a no-jeopardy ruling and a permit to kill up to 92% of listed juvenile Snake River salmon passing through the system. Now that should breed real respect for law and order.

failure to raise rates to even keep pace with inflation - let alone costs - for almost a decade, and egregious customer subsidies that would make an eastern Europe bureaucrat blush.

--BPNUCC has done to Northwest Indian tribes what Buffalo Bill and his cohorts did to the Great Plains tribes. BPNUCC didn't discriminate; they also destroyed the basic resource that sustained many thousands of non-Indian citizens as well.

In sum, what Congress called "an emergency" in 1980 has deteriorated into a man-made environmental and economic disaster unparalleled in the modern history of the Republic.

What's wrong with this picture?

Notwithstanding BPNUCC's claims to the contrary, the facts are clear and indisputable by thoughtful, principled men and women who respect the salmon protection intent of Congress and will of the people of the Northwest and Nation: The cost of doing what Congress intended, in treating with NW tribes, in originally authorizing the federal dams, in passing the NW Power Act, is relatively modest, is exceeded by the economic benefits, will not tip over the pork barrel, will have relatively minor effect on long-term Northwest electrical energy rates, is the right thing to do, and is not discretionary.

All of the wasted public resources, all the environmental havoc, all the attendant human suffering, the corruption of the democratic process, are the product of an entrenched Politburo of myopic ideologues at Bonneville and their pork barrel constituents. The same basic cast of characters and mind set that created the WWPSS nuclear power plant debacle and nation's largest municipal bond default. That got Bonneville \$15 billion in debt while simultaneously nearly wiping out the world's largest chinook and steelhead runs at a cost of even more billions.

This same Politburo of entrenched interests seeks at any public cost to build a Maginot Line against change; to attempt to buy a few more years at the public trough for BPA's pork barrel constituents and shield them from the rigors of free enterprise; to attempt to buy BPA political absolution for its misdeeds.

³ It is distressing to hear Administrator Hardy mouthing the canard that Bonneville has spent one, or is it now two, billion dollars implementing the Council's Program? This is false. Ask him how much of that was real mooney and how much was "opportunity cost of energy revenue foregone." The latter is slight of hand accounting that would get a private citizen arrested if he or she tried it on the IRS. It rests on Bonneville's false claim that it owns the Columbia River and that any drop of water not devoted to energy production can be claimed as an "expenditure." Nice trick if you can pull it off. Why stop at water used for fish? Why not claim an opportunity cost for energy revenue forgone to irrigation streamflow depletions? For flood control. For livestock watering. For water consumed by chukars and trees. The possibilities are endless. Unfortunately for Bonneville and its creative accountants, Bonneville does not own the Columbia River, does not have the legal "opportunity" to use all its water, and therefore, has no legitimate opportunity cost for water used to meet other legally authorized uses of the river. Like fish passage, for example.

This is why, Mr. Chairman and members of the Task Force, we need your help now, and continuing oversight for the next few years. Bonneville needs a firm hand to restore its ethical moorings so, to paraphrase your chairman, "Bonneville can serve as a conscience, or at least an example, for the utility industry" [which clearly needs both]. The President and the Congress must bring this agency into line with the salmon protection intent of the people and the Congress as belatedly reflected in the Council's call for drawing down John Day and the lower Snake River reservoirs. To stop the diversionary squandering of public resources. To expedite the capital investments necessary to implement pivotal reservoir drawdowns and thereby stem the social, economic and environmental hemorrhaging that is traumatizing the region and undermining the public's faith in its political institutions.

Response to Task Force Questions

1) Is the NPPC's strategy for Salmon an appropriate and sufficient framework for salmon recovery efforts in the Columbia Basin? What are the strengths and weaknesses of the Strategy for Salmon?

It is an appropriate and sufficient *framework*. Its strength is that it was forged in the fire of real participatory democracy, and [belatedly] deals with the pivotal issue of improving downstream migrant salmon survival via the only rational approach, i.e., reservoir drawdowns. Its weaknesses are legion; it violates virtually every standard established by Congress in the Northwest Power Act [see previous discussion]; it is pusillanimous regarding the pivotal issue of reservoir drawdowns; it at egregious expense provides a study, committee, process, or chicken for every pot rather than focussing on pivotal issues and needed capital investments; it cravenly accomodates BPNUECC's blatant agenda to prove Darwin wrong by making fish barges "work" even if they have to kill all the fish to prove it; it has no teeth, not even a falsetto growl, to ensure compliance by the Corps of Engineers and Bonneville.

2) Is the implementation of the Strategy for Salmon on track for timely completion? How well are federal and state agencies coordinating their activities with each other and with the Council to achieve timely implementation?

It is not on track for timely completion, even 13 years after Congress called for emergency action. The Corps and Bonneville have no intention of implementing reservoir drawdowns. Their intent is clear and unambiguous. They will study draw downs to death, squander more millions of public dollars, compound the environmental, social and economic damage, unless the President and/or the Congress brings them to heel.

State, tribal and federal fisheries agencies - except for National Marine Fisheries Service - generally are well coordinated; still room for lots of improvement. National Marine Fisheries Service has used its authority to implement the Endangered Species Act to ignore and undermine the coordinated actions of other state, tribal and federal fisheries agencies. The NMFS Snake River salmon recovery team is expected to be politically correct and grandiloquently describe the ball park

and drop the ball on the pivotal issue of reservoir drawdowns, e.g., to call for more studies of the studies, "better science," and thereby undermine the Council's *Strategy for Salmon*. [BPNUCC of course planted their man on the recovery team; by all accounts he has done them yeoman's service.] Public salmon advocates will attempt to get a federal court, ala the spotted owl, to remind NMFS and its recovery team that the ESA is the floor of protection; it cannot legally be used to undermine greater protection afforded under other law, i.e., the Northwest Power Act.

3) Bonneville asserts that its current financial condition will prevent or delay full implementation of the Council's fish and wildlife program. What measures can Bonneville take to ensure more stable funding for the Council's fish and wildlife programs, given its wide swings in revenues?

Bonneville has demonstrated it will say or do almost anything to prevent or delay full implementation of the Council's program. The Council's program is a small fraction of Bonneville's budget. If Bonneville had any intention of fully implementing the Council's program it would easily plan for wide swings in revenue like any responsible agency would do.

Bonneville knows the approximate cost of the Council's program. The President and/or the Congress should firmly disabuse Bonneville of the idea that it will succeed in avoiding having to implement the program and simply require the agency to set its rates at the required level.

4) What can be done to facilitate water conservation and other changes in regional water management to provide increased flows for power production and salmon recovery?

In the short-term it simply is not practical to look to water conservation as making a substantive contribution to salmon recovery. The salmon will not recover unless the main-stem juvenile fish passage problem is resolved, and this problem cannot be treated with water conservation, only with reservoir drawdowns in the lower Snake and a combination of drawdowns and reservoir releases in the Columbia.

Given reservoir drawdowns to ensure salmon recovery, water conservation has enormous potential for complementary flow enhancement in tributary spawning and rearing areas, and over the long-term, for marginally increasing hydropower production, among other public benefits.

I have appended a detailed response to this question prepared by my colleagues at the Columbia Basin Institute.

Other water management changes are necessary and doable in the short-term. These include use of non-treaty storage in Canadian reservoirs to enhance passage and survival of juvenile fish migrating in the main-stem Columbia River. The Bureau of Reclamation has more than 3 million acre feet of uncontracted storage behind Grand Coulee; the Secretary of Interior and BurRec Commissioner should tell the BurRec NW Regional Director to tell BPNUCC to suck eggs and then use that storage to improve juvenile fish passage pending drawdown of John Day Reservoir; this may be the only way to force BPNUCC [and thereby the Corps] to stop fighting John Day

drawdown. This also would be a good way for the Secretary to practice what he preaches about his trust responsibilities to tribes who've had their treaty-reserved fishing rights rendered virtually worthless to pay Bonneville's nuclear power plant gambling debts and keep its pork barrel customers' rates below the cost of providing them energy from the FCRPS. In the longer term, renegotiation of the Canadian entitlement should have explicit fish-protection strings attached.

5] Are existing institutions and institutional arrangements at the state and federal level adequate to implement salmon recovery plans? What improvements should be made to ensure better regional coordination among the many federal, state, tribal and private entities that must work together to achieve salmon restoration? In particular, the following alternatives have been suggested for better implementing salmon restoration plans. Please comment on each:

a] Providing additional public involvement in existing federal processes, including review of annual operations;

Annual negotiations under the Pacific Northwest Coordination Agreement are closed to the public and to state, federal and tribal fisheries agencies. The President and/or the Congress should put a stop to this immediately. The National Marine Fisheries Service's consultations under the Endangered Species Act are closed to the public and to state, federal and tribal fisheries agencies. Ditto.

Bonneville has a general tendency to provide for expansive but pro forma public involvement in its decision making, but is notorious for cutting the real deals with its customers and ideological fellow travelers outside of public view. The President and/or the Congress should put a stop to this practice.

b] Changing the membership, structure, or authorities of the Council;

The Council suffers most from a lack of accountability to the intent and standards of the Northwest Power Act. Consequently, it failed to meet the former, and for the most part ignored the latter. It is inexcusable that the Council was allowed to dither away for more than a decade before developing a pusillanimous fish restoration plan that Bonneville, the Corps and National Marine Fisheries Service ignore. Given the transfer of large sums of money to the states, the prospect of continuing congressional oversight, directly and through the Government Accounting Office, would spur NW governors to appoint and hold accountable council members who take the law and its standards more seriously than the understandable desire to be buddies with BPNUCC.

Bonneville and the Corps will never fully and timely implement the Council's program so long as they can get away with treating it as discretionary and can therefore count on their pork barrel constituents for political cover. If Congress is serious about bringing these agencies into line with original project authorizations and the Northwest Power Act, it will have to give the Council

additional powers to require compliance with its program, or, the President will have to use his power as Chief Executive and the Congress its power over appropriations to bring Bonneville and the Corps to heel.

The Council has evolved into a very expensive mediation service. In my view, it has developed an institutional culture and inertia that is not reformable without direct action by the Congress. It is for a directed GAO investigation: Has the council outlived its usefulness? Does it need a new job description? How can it be held accountable to the intent of Congress and to the standards of the Act?

At minimum, the Council needs annual congressional oversight. It needs authority to accept, hold trust and disburse Bonneville funds to implement the Fish and Wildlife Program. [See response to e] below.]

Congress should require the Council to include natural gas in its regional energy planning; failure to do so is patently ridiculous.

c] Incorporating salmon recovery measures into the Northwest Coordinating Agreement.

Yes. Remember, virtually if not the only salmon recovery measured with a substantive effect on annual operations are those related to the pivotal issue of downstream migrant passage, i.e., main-stem reservoir draw downs and supplemental flow augmentation. PNCA signators are for the most part if not unanimously determined these pivotal measures will never be implemented. Even if they are, PNCA signators will annually obfuscate and dissemble. There is no alternative to Congress directing the capital investments required to implement drawdowns and to include representation of the region's fish and wildlife agencies, including tribes, in PNCA operations.

d] Adopting a new agreement or creating a new regional entity among BPA, the Corps of Engineers, the Bureau of Reclamation, the Council and others to administer annual river operations;

The Council to its shame established a Fish Operations Executive Committee at the behest of Bonneville and its pork barrel constituents which has diluted what little influence the region's fishery agencies had over annual river operations. This is yet another example of the Council's propensity for form and process over reality. Until the President and/or the Congress mandates implementation of required structural modifications and flow regimes, no agreement or entity will deliver salmon recovery. In the event, any fish flow rule curve would be annually compromised and ultimately nibbled to death without the full and equal participation of the region's fishery agencies in any new agreement or regional entity to administer annual river operations. Bonneville's customers, unless they own an affected storage project, should not be represented in any such agreement or entity; Bonneville can always be counted on to represent their interests in spades.

e) Transferring a lump sum in fish and wildlife funds from BPA to fish and wildlife agencies to be administered by those agencies for salmon recovery, while providing accountability for the results of the work funded; or

Bonneville has used its control of the purse strings to: impede adoption and implementation of the Council's program; fund anti-fish propaganda, disinformation, cooked "science," diversionary studies and research, and costly scams like the S.S. Cockamamie [Corliss] and squawfish "control" programs; build a redundant fish and wildlife bureaucracy; shamelessly buy state, federal and tribal fishery agency acquiescence to its political agenda; and corrupt scientific fish and wildlife management to a degree unparalleled in the Northwest and perhaps the Nation. Unfortunately, it is abundantly clear this propensity is hard-wired.

The Council should be given authority to accept and disburse funds from Bonneville to implement the program adopted through the public process. Bonneville should annually write one lump sum check to the Council to fund approved program measures. The Council should disperse the funds; the recipients should be held strictly accountable for expenditure of funds.

The President and/or the Congress should direct Bonneville to immediately eliminate its costly, redundant fish and wildlife bureaucracy. Bonneville should redirect its energy from trying to control the Fish and Wildlife Program of the Council [of which it has made a real mess] into figuring out how to do its real job of marketing energy well enough to pay its bills [of which it has made an even bigger mess]. Until these things are accomplished, it is foolish and potentially dangerous to the public interest to seriously entertain any so-called "competitiveness" initiatives for Bonneville, or God forbid, even think of giving this architect of environmental and economic disaster *more* autonomy as a government corporation.

f) Legislatively creating a new entity or designating an existing agency with authority to mandate salmon recovery actions.

The salmon of the Columbia River Basin and the people who depend upon them will not survive another "new entity." Less, not more bureaucracy is needed. With the exceptions noted above, the laws and institutions are adequate to ensure fulfillment of long-standing congressional intent and the will of the people that salmon and the people who depend upon them be protected in operations of the FCRPS. What is lacking is accountability; that only will come if the President and the Congress use their powers of oversight and control of the appropriations process; the preceding identifies pivotal leverage points.

Thank you for the opportunity to testify. I would be happy to answer any questions.

STATEMENT OF DON GODARD

Mr. GODARD. Mr. Chairman, I appreciate the opportunity to be here today. I am Don Godard, I am manager of the Grant County Public Utility District. With me here today are Jim Davis who is president of the Washington PUD Association and Sonny Smart, manager of Chelan County Public Utility District. Between the three of us, we own and operate five Columbia River dams downstream of Grand Coulee and upstream of the Tri Cities, generally centered on Wenatchee.

We are part of the hydroelectric system that was created by Senator McNary, Senator Wayne Morse, Senator Warren Magnuson and Senator Scoop Jackson. The stewardship of that legacy now rests with you, Senator Hatfield and Speaker Foley. The system was originally created to provide hydroelectricity and other multipurposes such as transportation and flood control. Power from our dams is shared throughout the Northwest, including Spokane, Seattle, Tacoma, Kelso-Longview, Portland, Forest Grove, McMinnville, Milton-Freewater, Eugene and other areas served by Pacific Power.

The hydroelectric system that we are a part of was part of a social contract that said the Columbia River would be developed to provide economic prosperity to the Northwest and that commercial fishing would be sustained by hatcheries on the lower Columbia. This contract has served us well.

In the Northwest, we have relatively inexpensive power that compensates for our disadvantages, such as our remoteness from the markets. And we have economic activities occurring here that would not otherwise be possible.

We have also maintained a commercial fishery. More salmon pass our dams today than when they were built.

To describe the current situation as doomsday ignores the fact that we have 2½ million salmon entering the Columbia River after harvest in the ocean. Fall chinook in the mid-Columbia stretch of the river are healthy, and we have over 90,000 sockeye crossing our project each year.

Nonetheless, the contract has had a dark side. Grand Coulee Dam, Idaho's Hells Canyon Dam and other dams have blocked salmon from their spawning habitat. The American Fisheries Society report, however, notes that other streams, particularly coastal streams that do not have dams, have equally depressed runs.

The second part of the dark side is that the river has been managed to produce meat and not protect wild stocks. Examples are that the wild Columbia River Coho are probably extinct because of the way we have run our hatcheries and the mixed stock fishery. Also, wild sockeye have been poisoned in Idaho, so that a trout fishery could be sustained.

Now the Endangered Species Act has turned the social contract on its ear. The Columbia River will be managed for wild salmon, above all else, above harvest and above power production.

Now the power system has already changed in response to the Endangered Species Act. Over the past 10 years, we have spent a billion dollars and that is largely for flows to help the downstream migrating smolts. People from the Northwest have paid that one billion dollars and the purchasers of our power, including those in

Eugene and Seattle, have paid an additional \$250 million and currently we are in the process of making decisions that will spend hundreds of millions of dollars more.

In Grant County, we have lost about 10 percent of our generating capabilities to salmon. Replacement power costs four times as much as our own sources. This loss has resulted because ten million acre-feet of water, which is twice the volume of Lake Roosevelt, was transferred from power product to fish. We will be turning to conservation and natural gas to make up that shortfall and to maintain an inexpensive power supply.

Now let me put this one billion dollars in perspective. This is not paid by me or Ed or the rest of us in this room, it is paid by real people, and these people are not nonsense, as has been alluded to earlier.

Let me give you some examples. For 10 years of my life, I spent working for the State of Oregon and during that time I spent countless hours in public hearings and never once in any of those hearings did I see anyone who could not pay their electric bills. Seven years ago, I started work at Canby, Oregon's municipal electric system and I was ten steps from the front counter where people who could not pay their bills came. When they could not pay their bills, they ended up in front of me. I can remember the first time a lady came in who was left alone and only had social security to pay her bill, and I remember a carpenter with five kids came in because he was waiting for his worker's comp. None of those people ever showed up at any of these hearings.

At Canby and at Grant, I have seen our own employees, some of which are single moms earning less than \$10 an hour, reach into their own pocket to pay utility bills. I have seen them mow lawns for customers because the customer was having to choose between whether to pay a kid to mow the lawn or to pay their electric bill.

I have seen electric consumption for apartments that could have only meant that the people living there were having to choose between food, hot water or heat.

I have talked at rate hearings to gentle farmers who ask how are they going to absorb rate increases when wheat is selling for the same as it did 10, 20 or 30 years ago. This is what the billion dollars means to carpenters, widows and the elderly and farmers.

In Grant County, the salmon measures, the change in flows, would have required us to raise rates 9 percent every year. Our customers said they could not handle that, so what we did is eliminated one out of six jobs in our utility. And that is what this billion dollars and these flows has meant to utility workers.

So we have changed. There is 10 billion acre-feet of water that is moved from power production to fish and these people have paid that price. Now if we had gotten something productive from that, we could go back to them and tell them with some pride what we had accomplished. But the tragedy is, I agree with Ed Chaney here, that over the last 10 years, the fish are worse off than they were when they began this effort. The billion dollars apparently has been wasted.

Now we believe—at least I believe—that this is the recurring theme of the Tragedy of the Commons. No one is responsible for

the fish, no one has ownership in them and they are over-exploited. That is a common theme that you see related to fishing worldwide.

Now the billion dollars was spent, not because somebody had great scientific data at the time those decisions were made. Agencies and tribes came before the Power Council and said the fish cannot wait, we cannot wait for the scientific information, we need to err on the side of the fish. And so we did. But the fish were worse off after that 10-year experiment than they were before. There are two possible answers for that—either the flows do not help or somebody went fishing. We believe the record is clear, the fishing wiped out the benefits provided by the additional flows in the 1980s.

We are concerned that this pattern is repeating itself this year. We have seen projections that the harvest levels that have been talked about would result in fewer spawners getting back to the spawning grounds than last year. This is the tragedy of the Columbia—not that we spent the money, but that we did not get anything for it.

We believe change will come, but the transition will be hard. What we are looking at is the current situation that is not working for anyone. It is not working for the farmer, the utility worker, the elderly or these other people I have mentioned, but it is also not working for the harvesters. They are catching fewer fish and being paid less for it. What we need is leadership that would move us toward a sustainable economy with sustainable fish runs. We believe that a sustainable future is based on hydropower. It is a clean, renewable resource that can produce power indefinitely without producing toxic wastes or air pollution. It will be the foundation of that society.

As for fishing, we would encourage sport fishing. It is biologically sound because streams with weak stocks can be closed and those with strong stocks can be fished. The Deschutes and the Mid-Columbia steelhead streams are examples of this. Wild fish with adipose fins return to the water; those without are hatchery fish and can be kept.

Moreover the sports fishing has more economic return than commercial fishing, and the benefits can be shared not just with the coastal communities, but with Salmon, Idaho and Imnaha, Oregon, as well.

Second, we should honor our legal and moral commitments to Native Americans, without qualification.

Third, commercial harvest, if it is going to continue, has to be reformed, has to move away from gill nets and other forms of non-discriminatory catch. By moving to live catches or to geographic areas that have strong stocks but not the weak stocks. If they choose not to make those changes, I believe that future generations will overwhelm them because of changing public attitudes.

If we make these changes, we believe we can have a sustainable society.

Thank you for the opportunity to testify.

Mr. DEFAZIO. Mr. Baker.

[Prepared statement of Mr. Godard follows:]

DEFAZIO HEARING
ORAL TESTIMONYIntroduction

My name is Don Godard. I am Manager of Grant County PUD. With me are Jim Davis, Commissioner of Douglas County PUD and Sonny Smart, General Manager of Chelan County PUD. Between us we own and operate 5 dams on the Columbia River downstream of Grand Coulee and upstream of the Tri Cities.

We are part of the Hydroelectric System created by Senator McNary, Senator Wayne Morse, Senator Scoop Jackson and Senator Warren Magnuson. The stewardship of that legacy now rests with Senator Hatfield, Speaker Foley and yourselves. This system was initially conceived to provide reclamation, flood control and river transportation coupled with the multi-purpose benefit of hydropower. Power from our dams is shared throughout the Northwest -- Spokane, Seattle, Tacoma, Kelso-Longview, Portland, Milton-Freewater, McMinnville, Forest Grove, Eugene and rural areas serviced by Pacific Power.

Background

Our hydroelectric system was created as part of a Social Contract that said the Columbia River would be developed to provide economic prosperity to the Northwest and that commercial fishing would be sustained by hatcheries on the Lower Columbia. This contract has served the nation well:

1. In the Northwest we have relatively inexpensive power that compensates for our disadvantages, such as our remoteness from major markets. Without the advantage of inexpensive power some economic activities that now occur would not be possible.
2. A commercial fishery has been sustained. More Salmon pass our dams now than before they were built.

The Contract has a dark side as well:

1. Grand Coulee, Hells Canyon and other dams block salmon from their spawning habitat. However, the American Fisheries Society Report shows that coastal systems that have no dams also have many stocks threatened with extinction.
2. The river has been managed to produce meat and not protect weak stocks. For example, Wild Columbia River Coho may be extinct because of hatcheries and mixed stock fishing. Also, wild sockeye were poisoned in Idaho so that a trout fishery could be sustained.

The Endangered Species Act has turned our Social Contract on its ear. Now the Columbia River will be managed for wild stocks of salmon above all else - above power production, recreation, flood control, harvest, and river transportation. We have only now begun to see the magnitude of change that this will cause.

Hydro System

The hydroelectric system has already changed in response to the Endangered Species Act. Over the past 10 years \$1 Billion has been spent by the people of the Northwest for Salmon. The people buying power from our Mid-Columbia Dams have spent an additional \$250 Million thus far and currently we are in the process of making decisions that will cost \$100's of Millions more in coming years.

At Grant County, we have lost 10% of our generation capabilities to Salmon. Replacement power costs 4 times as much. This loss occurs because 10 million acre feet of water -- twice the volume of Lake Roosevelt that stretches from Grant County in Central Washington to the Canadian Border -- was transferred from power production to salmon flows. We will turn to conservation and natural gas to try to maintain an inexpensive power supply.

Let me put these expenditures by rate payers in perspective:

1. I spent 10 years of my life as an employee of the State of Oregon during which time I participated in countless public hearings on energy issues. During that entire time I never met anyone who could not pay their electric bill. Seven years ago I started work as the manager of the Canby Oregon Electric Utility - my desk was 10 steps from the front counter. When people couldn't pay I ended up talking with them. I vividly remember my first experiences -- the carpenter with 5 kids waiting for a workers comp check and the widow with social security as her only means of support. People like this had never come to those public hearings.
2. At Canby and at Grant I've seen utility employees -- sometimes they were single moms earning less than \$10 per hour -- reaching into their purses to pay an elderly woman's bill. I've seen them mow a lawn for an elderly customer who struggled with the decision whether to use \$5 to pay kids to mow the lawn or pay their electric bill. I've seen electric consumption so low in apartments that the people had to be choosing between hot water, heat or food.
3. I've talked at rate hearings to gentle farmers who ask how they will absorb higher irrigation costs when wheat is selling for what it did 10-20-30 years ago.

This is what \$1 Billion means to carpenters, widows, the elderly and farmers.

The cost of salmon protection would result in 9% annual rate increases at Grant County for the rest of the decade. The people in our county said that they couldn't absorb those increases. Our response was to cut costs and to eliminate one out of six jobs at our utility. This is what \$1 Billion means to utility workers.

So we've endured changed flows -- 10 million acre feet of water for salmon, \$1 Billion and another \$3-4 Billion in the coming years -- and the carpenter, the widow, the elderly, the farmer and the utility worker paid the price.

Harvest

The tragedy is that this sacrifice has not helped the Salmon. Weak stocks are weaker than before the investment of \$1 Billion because harvesters have prevented rebuilding - it is a classic example of the "Tragedy of the Commons" - no one owns the salmon runs, there is no consensus approach to maintaining their long term health and they are over exploited. This is a recurring theme in the history of fishing world wide.

In the case of the Columbia River, consider that in the late 1970's National Marine Fishery Service decided not to list the salmon but 10 years and approximately \$1 Billion later they found the fish were worse off than they were before and now say they should be listed. In the 1980's it was argued that more flows would produce more salmon so more flows were provided, but we found that the salmon were worse off than when we started. Why is that?

There are two possible answers -- either flows don't help or somebody went fishing. The record is clear -- they went fishing and wiped out the benefits provided by the sacrifice of the carpenter, widow, the elderly, the farmer and the utility worker.

This pattern is repeating itself this fall. Harvesting will allow fewer spawners to reach their habitat than last year. This is the tragedy of the Columbia.

Change will come but the transition will be hard.

Transition

Consider our current situation during this transition. Currently the system is not working for anyone -- not for the carpenter, widow, elderly, farmer or utility worker and not for the harvester who has to catch more and more fish as the real price of salmon continues to fall. We need leadership to move towards a better future -- a future with a sustainable economy and sustainable fish runs.

What is that future? Hydroelectricity -- a renewable resource that can produce power indefinitely will be the foundation of a sustainable society. As for fishing, we should:

Encourage sports fishing - it is biologically sound because streams with weak stocks can be closed and others fished. The Deschutes and the Mid-Columbia steelhead streams are good examples - fish with adipose fins are wild fish and returned to the river - those without adipose fins are hatchery fish and can be kept.

Moreover, sports fishing has been shown over and over to have higher economic return than commercial fishing. And not just coastal communities will benefit - so will Salmon, Idaho and Imnaha, Oregon.

We can and should honor our legal and moral commitment to Native Americans - period.

And commercial harvest, if it is to continue, must give up gill nets and other non discriminatory practices by moving to live catches to locations that do not have weak stocks. If they choose not to make these changes they will be overwhelmed by changing public attitudes.

These changes will provide for sustainable salmon runs. The carpenter, widow, elderly, farmer and utility worker will also be better off knowing that at least their sacrifice has resulted in some good.

Leadership

These changes will be nurtured by existing leadership in the State and Federal management agencies or by the younger generation that will follow them. We have a Salmon Czar -- he is Rollie Schmitten -- and he has the absolute authority of the ESA which allows him to make whatever changes he deems necessary. Rollie has demonstrated, in the past, in different arenas, that he has the courage and wisdom to lead waring parades to a better future. He can do so again if he chooses. He and the state management agencies will need the encouragement and support from our Congressional Delegation and Governors.

Thank you for the opportunity to make our comments and for listening.

STATEMENT OF JIM BAKER

Mr. BAKER. Mr. Chairman and Representative LaRocco, thank you for the invitation to testify today on one of the critical environmental crises of our time, the decline toward extinction of wild salmon stocks in the Columbia River basin. For the record, my name is Jim Baker, based in Pullman, Washington. I am the Northwest Salmon Campaign Coordinator for the Sierra Club.

You have my thick prepared statement and its accompanying reports, and I will try to go to the highlights.

As you do, the Sierra Club still believes the Pacific Northwest can and should avert the public policy train wreck over salmon, which we tragically experienced over the spotted owl. We remain confident that this region can and should operate the Columbia basin hydropower system for maximum and equitable production of electricity and salmon. The living symbol of our Northwest culture, these fish are simply too valuable—both environmentally and economically—to lose forever.

Regrettably, the Bonneville Power Administration, despite its protestations here to the contrary, does not share this vision. Instead, their agency has seized decision-making powers on fish and wildlife policy, undermining salmon recovery proceedings established by Congress and thwarting the recovery effort itself. This is inappropriate for two reasons.

First, under the Northwest Power Planning Act and the Endangered Species Act, the Congress gave to the Northwest Power Planning Council and the National Marine Fisheries Service respectively—not to BPA—the responsibility to make determinations on the biological effectiveness, the cost and the feasibility of salmon recovery measures.

Second, BPA has no credibility. Asking BPA how to save the salmon is like inviting Japan or Germany to write U.S. trade policy. For this reason, I would respectfully urge you to reject Bonneville's arguments here today about competitiveness and biological uncertainty. But for the sake of brevity, I will focus on perhaps the most disappointing and frustrating example—Bonneville's steadfast opposition to the reservoir drawdowns of the four lower Snake pools and the John Day project on the lower Columbia, which the Northwest Power Planning Council incorporated into its *Strategy for Salmon*.

Now at the outset, I must address a couple of bugaboos incessantly raised by drawdown opponents here today and elsewhere. First, the Sierra Club and salmon advocates have never promoted these drawdowns as the only silver bullet, just the key measure for a successful salmon recovery.

Second, successful mitigation is entirely feasible for the various impacts, particularly outages of navigation locks and irrigation pumps. Mr. Chairman, if I believed even half of the Draconian evils alleged about the drawdowns, I would join Mr. Lovelin and others here in opposition to this crucial measure for salmon recovery.

In reality, the proposed reservoir drawdowns promise several compelling advantages: higher water velocities for migrating juvenile salmon; more reliability; larger summer flows; and greater cost effectiveness.

Now Mr. Lovelin and Mr. Wright here argue that the salmon really do not need these faster river speeds. They have testified in other forums that flows of 85,000 cubic feet per second in the lower Snake are adequate for juvenile salmon survival. In that case, we need not debate biology any further today. The Corps of Engineers has calculated that flow augmentation can attain their target of much lower water speeds in only half of recorded water years. Whereas the reservoir drawdowns could meet a much higher water speed target in 96 percent of recorded water years. Not only far less reliable, flow augmentation requires BPA to pay out in lost power revenues and in water purchases every year, year after year. Meanwhile the drawdowns emphasize one-time capital investments to modify the dams and mitigate collateral impacts.

For this reason alone, Bonneville should embrace these proposed reservoir drawdowns for salmon recovery, not oppose them. To do our part in averting a public policy train wreck, salmon advocates propose as a good faith, first step toward implementing the Council's Recovery Plan, that the Corps immediately proceed with the lowering of John Day Reservoir and modify the Lower Granite Dam in order to test reservoir drawdown operation.

Our proposal has received support from the Governors of Idaho, Oregon and Washington, and from the Regional Directors of the National Marine Fisheries Service and the U.S. Fish & Wildlife Service. In response, BPA along with the Corps has demanded not less than 6 years of additional study and testing which, combined with the Corps' glacial pace to install dam modifications and impact mitigations, would delay this key recovery measure beyond the year 2013. By that time, extinction of the Snake Basin sockeye, if not the chinook, seems a dead certainty. This paralysis by analysis can only yield the best-documented extinctions in history.

Mr. Chairman, the Bonneville Power Administration is not only failing to carry out its proper responsibilities to implement salmon recovery in the Columbia basin, the agency is arrogating decision-making power unto itself from the duly established fisheries agencies, from the sovereign Native American tribes and from the Northwest Power Planning Council.

Under the Northwest Power Planning Act, BPA's job is to implement the Columbia basin fish and wildlife program "to the maximum extent practicable," period, stop. The Northwest Power Planning Council's *Strategy for Salmon* candidly has flaws and weaknesses. The Council, for example, has not set escapement goals or rebuilding schedules.

But it is inappropriate for Bonneville to sit in judgment of the plan's adequacy or to demand its own standards and tests of biological certainty before proceeding with its statutory duty to implement the Council's plan. And it is just plain dangerous for Bonneville to pick and choose among measures in the Council's plan, canceling some actions such as reservoir drawdowns by refusing to provide funds—dangerous because the agency undermines the legally established proceedings by which the Congress and the region have tried to avert a public policy train wreck over salmon recovery.

To seize control of policymaking, Bonneville carries a large and expensive staff. Now I personally know many BPA staffers who are

professional, hard-working, expert and eager to carry out the agency's proper duties. But the Northwest simply cannot afford such an obese BPA.

Heavy at the top level, BPA has so many deputy administrators, assistant administrators, executive assistant administrators, deputy assistant administrators, assistants to the administrator, that the BPA acronym apparently stands for "big pile of administrators."

Similarly, the agency carries an expensive fish and wildlife staff of 60, when we can rely upon BPA's customers and several of these gentlemen on this panel, to complain about fish and wildlife costs early, loudly and often.

Either the Clinton Administration or Bonneville itself should aggressively downsize the top-level management and biology staff which apparently has nothing better to do than convince itself that free-flowing rivers kill fish. BPA will survive and probably thrive without so many assistant executive deputy administrators, who plan their way into a 15.7 percent rate hike.

Following current law and trimming its bloated bureaucracy would take BPA farthest and fastest toward reform. In this light, all these various proposals such as BPA's competitiveness project and its 10-year fish and wildlife implementation plan, re-inventing BPA into a government corporation, designation of a salmon czar or changes in institutional flow charts, frankly sounds like too much hasty rearrangement of deck chairs on the *Titanic*, if not a threat by the captain to aim the boat straight at the iceberg.

Instead of competitiveness, Bonneville should develop some competence and should, for once, simply do its job. Instead of rewarding BPA for its 15.7 percent rate hike, the Congress should reject the proposed conversion of Bonneville into a government corporation and should reassert the role of the Northwest Power Planning Council as BPA's board of directors.

If BPA cannot hear or will not listen to this message, then the Congress must prescribe stronger medicine to reform the agency.

One last point, Mr. Chairman, everything that I have said about BPA in this testimony, especially downsizing top-level management, goes double for the U.S. Army Corps of Engineers.

Thank you for the opportunity to testify before the task force. I welcome your question.

Mr. DEFAZIO. Thank you, Mr. Baker. Mr. Wright.

[Prepared statement of Mr. Baker and attachments follow:]

Statement
of

Jim Baker
Northwest Salmon Campaign Coordinator
Sierra Club

before
the

Bonneville Power Administration Task Force
Peter A. DeFazio, Chairman

Committee on Natural Resources
U.S. House of Representatives

in

Boise, Idaho
September 24, 1993

Mr. Chairman and Honorable Members of the Task Force, thank you for the invitation to testify this morning on one of the critical environmental crises of our time: the decline toward extinction of wild salmon stocks in the Columbia River Basin. For the record, my name is Jim Baker, and I am the Northwest Salmon Campaign Coordinator for the Sierra Club, a national conservation organization of 500,000 members. I staff an office in Pullman, Washington located about five miles from Lower Granite Dam — the first of eight mainstem dams on the Lower Snake and Lower Columbia Rivers, which are inevitably driving the remaining wild Snake Basin salmon runs into extinction.

Among other credentials to appear before the Task Force this morning, I was a seated participant in the regional Salmon Summit of 1990-91. As do my colleagues in the Sierra Club, I still believe that the Pacific Northwest can and should — through the process of the Salmon Summit and the subsequent rule-makings by the Northwest Power Planning Council — avert the public policy "train wreck" over salmon which we tragically experienced over the spotted owl. We remain confident in the fundamental wisdom contained in the Northwest Power Planning Act that this region can and should — through integrated, comprehensive planning and equitable treatment of both resources — operate the Columbia Basin hydropower system for maximum sustainable production of electricity *and* salmon. The living symbol of our Northwest culture, these fish are simply too valuable — both environmentally and economically — to lose forever.

Some Examples of the BPA "Vision" for Salmon

Regrettably I must tell you this morning that the Bonneville Power Administration — despite its protestations to the contrary — does not share this vision. Here are just a few of the most telling examples:

- During the Salmon Summit, deputy administrator Jack Robertson told *The Oregonian* that a "worst case" salmon recovery effort which nobody ever proposed would cut hydropower production by 11,000 megawatts — a deliberate act of disinformation designed to sow public panic and hostility toward salmon recovery. Neither Mr. Robertson nor the agency has retracted or clarified this inaccurate and irresponsible statement to the press.
- Recently this same official misread, tortured, and twisted research by the Idaho Department of Fish and Game to reach the conclusion that free-flowing rivers kill migrating juvenile salmon. Apparently in his mind, this did not beg the obvious question of how the salmon survived and thrived in the free-flowing Columbia Basin over millenia. It does follow to the ludicrous notion that the way to save Snake River salmon is to build more dams.
- Despite an internal fish and wildlife staff of 60, BPA this year let multi-thousand dollar contracts for technical reports in support of the agency's positions on salmon recovery. The reports contained no new data; the prime contractor as well as by and large the subcontracted biologists have long-standing ties as paid consultants to the regional utility industry.
- BPA's two computer models — known by their acronyms SLCM and CRiSP — which the agency developed to forecast salmon production and spawning escapement can not accurately "back-cast." That is, the computer models do not spit out even remotely the same numbers for paper fish as for salmon actually observed in the Columbia Basin historically. Nonetheless, Bonneville insists upon using its computer models to evaluate salmon recovery measures.

BPA Is Not a Fisheries Agency, But Makes Decisions Anyway

Unfortunately these are not isolated instances of a BPA official cutting the fabric of biology to fit the pattern of BPA's goals for fish policy. BPA's practice of defensive biology is inappropriate for two reasons. First, under the Northwest Power Planning Act and the Endangered Species Act, the Congress gave the responsibility to the Northwest Power Planning Council and the National Marine Fisheries Service respectively — not to BPA — to make determinations on the biology of salmon recovery.

Second, BPA has no credibility. Asking BPA how to save the salmon is like inviting Japan or Germany to write U.S. trade policy. Yes, the Japanese

and Germans undoubtedly know a great deal about international trade, but their knowledge — obviously — is not free from the taint of a certain bias.

Nonetheless, Bonneville has shown no timidity about making biological decisions which undermine salmon recovery proceedings established by Congress under law, and thwart the recovery effort itself.

- Last year BPA unilaterally decided to write its own fish and wildlife program. Bonneville calls it a 10-year implementation plan; I call it a direct slap at the Northwest Power Planning Council.

- At a public meeting here in Boise, an agency official stated that, "if we think it's wrong or won't work." BPA might choose to completely ignore the forthcoming salmon recovery plan from the National Marine Fisheries Service (NMFS).

- This year the Administrator himself told a group of public interest leaders that Bonneville would pick and choose among measures in the Council's strategy for salmon and the NMFS recovery plan.

- Recently BPA decided to delay or outright cut \$15-30 million from the next fiscal year budget for implementing the Council's fish and wildlife program. Press releases from the agency had declared Bonneville's commitment to fully fund the program.

All this is part and parcel of BPA's long-standing strategy of pushing its own fish and wildlife agenda, ignoring or challenging the duly established resource agencies and policy-makers, and, above all, implementing only whatever recovery and mitigation measures whenever the agency in its wisdom chooses to.

Competitiveness Will Produce More of the Same

As you know, BPA's latest justification for this arrogation of decision-making unto itself is in response to its wholesale electricity rate increase of 15.7 percent. I respectfully urge the Congress to reject this rationale for several reasons. First and foremost, the Congress designated the Northwest Power Planning Council — not BPA — to decide what the region can and can not afford to spend on fish and wildlife recovery.

Second, the "crisis" over this rate hike is of BPA's own making. For six years, the agency buckled under to its customers' demands, and did not raise its rates in small, prudent, digestible lumps. In real dollars, BPA rates have declined in recent years.

Bonneville claims that the rate hike became necessary due to drought, low aluminum prices, and listings of threatened and endangered salmon

stocks — all factors, we are told, "beyond the agency's control." Hogwash. While BPA can not control the weather, it certainly can plan for dry spells. Drought, low aluminum prices, and the salmon listings were all as predictable as the sun rising in the east this morning. With the Northwest Power Planning Act, the Congress directed BPA to plan for just these contingencies, which the agency has clearly failed to do.

In 1987, Bonneville announced in its own public documents that BPA had deliberately departed from the least-cost path set out in the regional power plan, had incurred a clear risk of just what has occurred this year, and had done so in order to meet its customers' demands for no — zero — near-term rate increases. Between WPPSS debt and this departure from the regional power plan, BPA and its customers successfully dug themselves a deep hole, and this year fell in it. The Congress must now stop BPA and its customers from digging a bigger and deeper hole that the whole region falls into someday soon. It sends the wrong signal for the Congress to reward Bonneville for this 15.7 percent rate hike by giving the agency even greater latitude to decide whether and when BPA will implement the regional power plan or the Columbia Basin fish and wildlife program.

Third, BPA and its customers have argued before this Task Force and other forums that the agency must become more "competitive," or its customers will switch to other sources of power supply which, in turn, will slice into Bonneville's revenues, which, in turn, will strangle the agency's ability to fund fish and wildlife recovery. This argument is disingenuous, at best. The single most effective strategy for BPA to keep rates down is to shed load, and thereby eliminate the need to buy or install expensive new power supply. When its customers, particularly the Direct Service Industries which do not pay their fair share, threaten to switch to new power suppliers, Bonneville should respond, "Go ahead, make my day."

What have we seen so far from the competitiveness project and the designation of BPA as a "laboratory for reinventing government?" More of the same. A survey of the agency's "clients" produced new demands to cut or eliminate funding for fish and wildlife programs, to cut or eliminate public participation, to cut or eliminate oversight by policy-makers such as the Northwest Power Planning Council or even the White House. Apparently BPA had already bought into its customers' agenda on public participation; neither the Sierra Club nor any other public interest "client" received the survey — only the customers did. Congress clearly needs to remind Bonneville that its mission is competitive service to the public — not just its utility and industrial customers, and specifically, that its power sales contracts currently under negotiation should benefit the public and the region — not just its utility and industrial customers.

None of the recommendations to date from the competitiveness project call for the agency to simply implement the Council's fish and

wildlife program "to the maximum extent practicable," as required under the Northwest Power Planning Act. Evidently competitiveness would unleash Bonneville to ignore the Act more efficiently.

Mr. Chairman, if BPA requires an overhaul as an institution, then let's go the whole nine yards. Congress should write a whole new charter for the agency, and upgrade the Northwest Power Planning Council from a *de facto* to a full-fledged board of directors over BPA. Why do I suspect that neither the agency nor its customers would welcome such an initiative? Because BPA recently and once again unilaterally unveiled a chilling proposal to convert the agency into a government corporation — one further step removed from oversight by policy-makers and from participation by the public — one further step advanced toward BPA and its customers free to do whatever they please however misguided.

BPA Should Embrace, Not Oppose, Reservoir Drawdowns for Salmon Recovery

Most misguided of all has been Bonneville's steadfast opposition to the reservoir drawdowns of the four Lower Snake pools and the John Day project on the Lower Columbia, which the Sierra Club and other fish advocates have proposed, and which the Northwest Power Planning Council incorporated into its strategy for salmon. Due to the technical complexity of, and the overheated debate around, this issue, I have submitted with my statement to the Task Force several background reports and position papers, which provide detailed discussion. Here I will try to summarize the justification for these proposed reservoir drawdowns.

At the outset, I must address a couple bugaboos incessantly raised by drawdown opponents. First, the Sierra Club and salmon advocates have never promoted these drawdowns as the *only* — just the *key* — measure for a successful salmon recovery. We recognize the need for, and advocate, other changes in hydropower operations, habitat protection, hatchery practices, and harvest management.

Second, successful mitigation is feasible for the various impacts — particularly outages of navigation locks and irrigation pumps — from drawdowns. Therefore, far from inflicting economic damage, the drawdowns themselves as well as the resulting salmon restoration would actually benefit the local economy and create jobs for the people who I call neighbors. Let me remind you, Mr. Chairman, that I live and work in the affected community. If I believed even half of the draconian evils alleged about the drawdowns, I would join the witnesses lined up here in opposition to this crucial measure for salmon recovery.

In reality, the proposed reservoir drawdowns promise several compelling advantages:

• **More Velocity:** Compared to flow augmentation — the only feasible and effective alternative, the proposed drawdowns of the four Lower Snake pools can produce significantly faster water velocities through these reservoirs in order to speed migrating juvenile salmon safely down to the ocean. Flow augmentation equivalent to lowering the John Day reservoir to minimum operating pool would require a staggering 3.1 million acre-feet — Montana beware — or approximately the entire storage behind Hungry Horse Dam. In all of the Snake River watershed, storage does not exist to speed up the Lower Snake reservoirs to the velocities achieved in the proposed drawdowns.

• **More Reliability:** I can rely on Mr. Wright from the Pacific Northwest Utilities Conference Committee (PNUCC) and Mr. Lovelin from Northwest Irrigation Utilities (NIU) among others to argue that the salmon really don't need these faster river speeds. If they follow previous testimony in other forums, they will suggest that flows of 85,000 cubic feet per second in the Lower Snake are adequate or even "optimum" for juvenile salmon survival.

In that case, we need not debate biology this morning. The Corps of Engineers has calculated that flow augmentation can attain this lower water speed target in only half of recorded water years — whereas the reservoir drawdowns would meet a much higher water speed target in 96 percent of recorded water years. When drought strikes, stored water for flow augmentation dries up, too. On the other hand, the reservoir drawdowns speed up water movement on natural run-off no matter how small.

• **Higher Summer Flows:** Drawdowns from April 1 to June 15 per our proposal would allow the hydrosystem operators to save up the "water budget" for release during the summer months. Moreover, upstream irrigators can sell more acre-feet at a lower price because the drawdowns delay the decision date for water rentals until June 1 (from March 15) at which time farmers have passed the peak of the irrigation season.

• **Higher Cost-Effectiveness:** Flow augmentation requires BPA to pay out in lost power revenues and in water purchases every year, year after year. Meanwhile, the drawdowns emphasize one-time capital investments to modify the dams and mitigate collateral impacts. For example, BPA states that it spent \$40-\$70 million this year alone to "protect" a 3 million acre-foot block of water for flow augmentation in the Columbia. For a one-time capital investment of \$77 million to mitigate impacts to irrigation pumps, wildlife habitat, and recreation facilities, Bonneville would by lowering John Day pool capture — essentially forever — the flow augmentation equivalence of 3.1 million acre-feet.

For this reason alone, Bonneville should stand among the first eager to prove up and bring on-line these proposed reservoir drawdowns for salmon recovery. Regrettably the agency has, instead, opposed implementation of

this vital salmon recovery measure. The Northwest Power Planning Council told the Corps and BPA to implement the drawdowns by April, 1995 unless someone demonstrated an engineering, biological, economic, or legal show-stopper. Nobody has.

Nevertheless, to do our part in averting a public policy "train wreck," salmon advocates proposed as a good-faith first step toward implementing the Council's recovery plan that the Corps immediately proceed with the lowering of John Day reservoir, and modify the Lower Granite dam in order to test reservoir drawdown operation of that project below minimum operating pool. Our proposal has received support from the governors of Idaho, Oregon, and Washington, and from the regional director of the National Marine Fisheries Service. Nevertheless, BPA has spurned even this relatively inexpensive and prudent first step.

As its excuse, BPA complains about its perceived biological uncertainties around the drawdowns. Biological uncertainty did not stop Bonneville from launching a squawfish bounty program that, some biologists believe, has actually increased predation on juvenile salmon. Biological uncertainty did not stop Bonneville from spending \$10 million annually on a law enforcement program that has yet to snare any significant number of poachers — much less cost-effectively. Biological uncertainty did not stop Bonneville from funding and defending juvenile fish transportation despite the failure of the Corps — after nearly twenty years of barging and trucking young salmon — to prepare so much as an environmental impact statement for the program, much less scientifically document its effectiveness. In fact, the scientific evidence grows that barging and trucking juvenile salmon doesn't work, hasn't worked, and can not be made to work.

But on the drawdowns, BPA along with the Corps has demanded not less than 6 years of additional study and testing which, combined with the Corps' glacial pace to install dam modifications and impact mitigations, would delay this key recovery measure beyond the year 2013. By that time, extinction of the Snake Basin sockeye, if not the chinook, seems a dead certainty. This paralysis by analysis can only yield the best-documented extinctions in history. Militant delay by BPA and the Corps will also lead to a tragic repetition of what Forest Service foot-dragging needlessly inflicted on the region in the spotted owl recovery.

On drawdowns as with other fish and wildlife measures generally, Bonneville maintains that it must proceed cautiously with funding in order to avoid a repetition of the \$2 billion (an exaggerated figure) largely wasted in fish and wildlife mitigation over the past decade, and "manage to results" the \$300 million (another inflated figure) invested annually today. The Congress never asked BPA to conduct quality control over the fish and wildlife program. The fact of the matter is this: the agency and its customers don't want results, they don't want to spend money on fish and wildlife at all.

Moreover, this argument from BPA and its customers implicitly deflects blame for any and all salmon recovery failures onto the Council, the fisheries agencies, and the Tribes. Once again BPA conveniently ignores its own role — lobbying and negotiating away important recovery measures (e.g., turning the "water budget" into a compromise of a compromise), funding techno-fixes (e.g., building hatcheries and barging juvenile salmon), rejecting the professional judgment of the fisheries agencies and the Tribes (e.g., seeking recently to close the Fish Passage Center), and practicing its own defensive biology. For BPA now to lay the blame on the Council, the agencies, and the Tribes is wrong and indeed offensive.

Bonneville Should Implement the Council's Program and a Major Reduction in Force

The Bonneville Power Administration is not only failing to carry out its proper responsibilities to implement salmon recovery in the Columbia Basin. The agency is arrogating decision-making powers unto itself from the duly established fisheries agencies, from the sovereign Tribes, and from the Northwest Power Planning Council. The Congress must put BPA back on the right track.

Mr. Chairman, throughout these Task Force hearings, you have heard witness after witness call for leadership from the Bonneville Power Administration. Whether in electricity delivery or in fish and wildlife mitigation, Bonneville compulsively rushes forward to write its own policies, convene several new review groups, push its agenda, and otherwise exercise "leadership" to work its will. In knee-jerk fashion, BPA casts itself in the role of bride at every wedding, and corpse at every funeral.

This brand of Bonneville "leadership" fostered the tragic WPPSS debacle of the 1970s. At the brink of extinctions, wild salmon in the Columbia Basin don't need more "leadership" from BPA. I come before the Task Force this morning to plead for an end to BPA "leadership."

Instead, Bonneville should, for once, simply do its job.

Under the Northwest Power Planning Act established in law by the Congress, BPA's job is to implement the Columbia Basin fish and wildlife program "to the maximum extent practicable." The Northwest Power Planning Council's strategy for salmon candidly has flaws and weaknesses; the Council, for example, has not set escapement goals or rebuilding schedules.

But it is inappropriate for Bonneville to sit in judgment of the plan's adequacy. It is wrong for Bonneville to dismiss the Council's salmon recovery plan as advisory or discretionary. It is improper for Bonneville to demand its own standards and tests of biological certainty before proceeding with its statutory duty to implement the Council's plan. And it is just plain

dangerous for Bonneville to pick and choose among measures in the Council's plan, cancelling some actions such as reservoir drawdowns by refusing to provide funds — dangerous because the agency undermines the legally established proceedings by which the Congress and the region have tried to avert a public policy "train wreck" over salmon recovery.

Instead of competitiveness, Bonneville should develop some competence. Instead of second-guessing the Council, the agency should perform its proper duties to implement the regional power plan and the Columbia Basin fish and wildlife program.

Bonneville's habit of compulsive "leadership" has spawned a large and expensive staff. I personally know many BPA staffers who are professional, hard-working, expert, and eager to carry out the agency's proper duties. But the Northwest simply can not afford such an obese BPA.

This is especially true of the top-heavy, top-level management at the agency, which clogs the staff's ability to conduct BPA's business effectively. To exercise "leadership," Bonneville carries a dense mass of deputy administrators, assistant administrators, executive assistant administrators, deputy assistant administrators, assistants to the administrator. The BPA acronym apparently stands for "Big Pile of Administrators."

To solve this problem, President Nixon two decades ago provided the most effective tool for reforming Bonneville; it's called the Reduction in Force (RIF). The agency should aggressively apply the RIF to a top-level management which apparently has nothing better to do than convince itself that free-flowing rivers kill salmon. BPA will survive and probably thrive without so many assistant executive deputy administrators who "planned" their way into a 15.7 percent rate hike, and then whined about circumstances beyond their control.

Similarly, since we no longer care what BPA thinks is best for the salmon, since Bonneville will no longer second-guess the Northwest Power Planning Council nor the duly established resource agencies and the sovereign Native American Tribes, the agency need no longer carry an expensive staff of 60 for its fish and wildlife programs. Bonneville must retain a few biologists to write contracts for implementation of the fish and wildlife program. However, if and when the Council, the fisheries agencies, or the Tribes head down the wrong road — biologically or economically — with their fish and wildlife plans, BPA does not need staff to put them back on the right path. We can rely upon BPA's customers and their associations, especially the Pacific Northwest Utilities Conference Committee, to complain early, loudly, and often.

Following current law and applying a RIF to its bloated bureaucracy would take BPA farthest and fastest toward reform. In this light, all these

various proposals such as designation of the National Marine Fisheries Service as a salmon "czar," "re-inventing" BPA into a government corporation, or changes in institutional flow-charts — frankly — sound like so much hasty rearrangement of deck chairs on the Titanic. The simplest and most effective way for the Congress to send an immediate reform message to the agency is to:

- 1.) Restore full funding for the Council's Fish and wildlife program in the BPA appropriation for fiscal year 1993-94; and
- 2.) Appropriate funds to operate John Day Reservoir at minimum operating pool by April, 1995, and to modify Lower Granite Dam in order to test reservoir drawdown operation of that project below minimum operating pool by April, 1995.

If BPA can not hear or will not listen to this message, then the Congress must prescribe stronger medicine to reform the agency. The prescription might include:

- 1.) Payment of fish and wildlife funds in annual lump-sums to the resource agencies and Tribes, eliminating BPA discretion and *de facto* decision-making;
- 2.) New authorities which give the Northwest Power Planning Council "teeth" to force BPA to implement the regional power plan and the Columbia Basin fish and wildlife program; and/or
- 3.) New authorities for the U.S. Fish and Wildlife Service or for the Columbia Basin Fish and Wildlife Authority to mandate salmon recovery actions.

If the agency and its customers consider this bitter medicine, then they can take preventative steps, as outlined in my testimony today, "to the maximum extent practicable."

One last point, Mr. Chairman: Everything that I've said about BPA in this testimony, especially about a major Reduction in Force at the top management level, goes double for the U.S. Army Corps of Engineers.

In summary, the Columbia Basin hydropower system — the most sophisticated in the world — can operate for electricity *and* fish. The Northwest can avert a public policy "train wreck" over salmon recovery. We can save Columbia Basin salmon from extinction. But we can do all this only if either the agencies themselves or the Congress bring overdue change and reforms to BPA and the Corps before it's too late.

Thank you very much for this opportunity to testify before the Task Force. I welcome your questions.

Addendum: Responses to Specific Questions Posed by the BPA Task Force

1. Is the NPPC's Strategy for Salmon an appropriate and sufficient framework for salmon recovery efforts in the Columbia Basin? What are the strengths and weaknesses of the Strategy for Salmon?

If implemented on schedule in its entirety, the Council's Strategy for Salmon is the region's best chance to begin restoring these fish, and to avoid a public policy "train wreck" over salmon recovery. The chief strength of the Strategy for Salmon is its presumptive path to reservoir drawdowns in the Lower Snake and at the John Day project. Its chief weaknesses are: continued reliance on the failed experiment of juvenile fish transportation (barging and trucking), and failure to set a minimum juvenile migration travel time, adult escapement goals, or rebuilding schedules.

2. Is implementation of the Strategy for Salmon on track for timely completion? How well are federal and state agencies coordinating their activities with each other and with the Council to achieve timely implementation?

Implementation of the Strategy for Salmon is *not* on track for timely completion. The Council told the Corps of Engineers and the BPA to implement Lower Snake reservoir drawdowns by April, 1995 unless some party demonstrates an engineering, biological, economic, or legal show-stopper. No party has shown such a show-stopper. Indeed the drawdown test at Lower Granite and Little Goose projects in March, 1992 was successful. Nonetheless, the Corps and BPA intend to take the next 6 years studying and testing, and 14 more years implementing, the drawdowns. There are numerous other provisions in the Council's plan which the Corps, BPA, and other agencies are not implementing properly or promptly.

3. Bonneville asserts that its current financial condition will prevent or delay full implementation of the Council's fish and wildlife program. What measures can Bonneville take to ensure more stable funding for the Council's fish and wildlife programs, given its wide swings in revenues?

BPA's current financial condition is of its own making from WPPSS debt, from zero rate increases for the last six years, and from Bonneville's deliberate departure from the least-cost path set out in the Council's regional power plan. BPA revenues swing widely because the agency has failed to plan adequately for predictable circumstances such as drought, low aluminum prices, and listings of threatened and endangered salmon stocks. It sends the wrong signal to reward BPA for its 15.7 percent rate hike by allowing the agency to cut or delay funding of the Council's fish and wildlife program. BPA can reduce costs by applying a Reduction in Force to its top-level management, its fish and wildlife division, and other unnecessary staff or operations.

4. What can be done to facilitate water conservation and other changes in regional water management to provide increased flows for power production and salmon recovery?

In the Columbia, BPA refuses to provide more fish flow augmentation from Canadian storage reservoirs, particularly the Mica project, under the Columbia River Treaty or the so-called Non-Treaty Storage Agreements. All releases from Canadian storage go exclusively to power production.

In the Snake, reservoir drawdowns in the salmon migration corridor would result in larger summer flows (a) by concentrating the "water budget," and (b) by positioning irrigators to rent more acre-feet at lower prices.

Throughout the Columbia/Snake Basin, mandatory conservation measures, marketing arrangements such as "water banks," and cancellation of BPA's irrigation discount would facilitate better fish flows. However, to gain maximum benefit from new flow augmentation, the hydropower operators must fix the dams for better salmon migration passage.

5. Are existing institutions and institutional arrangements at the state and federal level adequate to implement salmon recovery plans? What improvements should be made to ensure better regional coordination among the many federal, state, tribal, and private entities that must work together to achieve salmon restoration?

No, the BPA and the Corps of Engineers refuse to implement key provisions in any successful salmon recovery plan. Both agencies should implement the Council's fish and wildlife program "to the maximum extent practicable," and should apply a Reduction in Force to their top-level management and their fish and wildlife staffs. If the agencies fail to do so, the Congress should impose these reforms.

The Sierra Club applauds the effort of the U.S. Fish and Wildlife Service to convene a roundtable of the federal agencies, the states, and the Native American Tribes to coordinate salmon recovery actions in the Columbia Basin and across the Pacific coast.

In particular, the following alternatives have been suggested for better implementing salmon restoration plans. Please comment on each:

a) Providing additional public involvement in existing federal processes, including review of annual operations;

In total secrecy, the National Marine Fisheries Service, the Bonneville Power Administration, the U.S. Army Corps of Engineers, and the Bureau of Reclamation conduct their consultation on annual hydropower operations under Section 7 of the Endangered Species Act. Similarly the signatories to

the Pacific Northwest Coordination Agreement plan annual hydropower operations behind doors closed not only to the public, but to federal and state fish and wildlife agencies, and the Native American Tribes. While excluded from these key proceedings, the public is invited to participate in a bewildering array of segmented, separate, overlapping, and relatively meaningless processes.

b) Changing the membership, structure, or authorities of the Council;

The Council has suffered from divisions among its members, and has routinely failed to meet its mandates under the Northwest Power Planning Act. However, neither the Congress nor changes in the Council's membership or structure can guarantee the qualifications of, or the performance by, the four governors' appointments. If the BPA and the Corps continue to refuse to implement the Council's fish and wildlife program "to the maximum extent practicable," if the agencies continue to view the Council's regional power plan and the Columbia Basin fish and wildlife program as advisory and/or discretionary, the Congress must give new authorities to the Council.

c) Incorporating salmon recovery measures into the Pacific Northwest Coordinating Agreement;

The PNCA signatories claim that they already incorporate salmon recovery measures as "hard constraints." In addition, hydropower operations change from water year to water year. Therefore, the PNCA should expand to include as full-fledged signatories all federal fish and wildlife agencies, all state fish and wildlife agencies, and all sovereign Native American Tribes in the Columbia Basin.

d) Adopting a new agreement or creating a new regional entity among BPA, the Corps of Engineers, the Bureau of Reclamation, the Council and others to administer annual river operations;

The Council established a Fish Operations Executive Committee for this purpose, which unfortunately put the fox in charge of guarding the chicken coop. Any such entity must include all federal fish and wildlife agencies, all state fish and wildlife agencies, and all sovereign Native American Tribes in the Columbia Basin. If such an entity has participation by the utility industry, it must also seat public-interest representatives.

e) Transferring a lump sum in fish and wildlife funds from BPA to fish and wildlife agencies to be administered separately by those agencies for salmon recovery, while providing accountability for the results of the work funded;

Because it would eliminate BPA discretion and decision-making in fish and wildlife mitigation programs, this proposal has considerable merit. With

input from the agencies and Tribes, the Council should set the amount of the annual lump-sum payment. Because needs and conditions change, the payment should not be capped in perpetuity. This lump-sum arrangement should not have no bearing whatsoever on hydropower operations such as storage releases or reservoir drawdowns for salmon recovery. For example, the agencies and Tribes would not "buy" flows or drawdowns back from the BPA with this lump-sum payment.

f) Legislatively creating a new entity or designating an existing agency with authority to mandate salmon recovery actions.

If the Congress adopts such legislation, it should designate the U.S. Fish and Wildlife Service, which has the geographic scope and the internal resources to work effectively for recovery not only of the salmon, but threatened and endangered species throughout the Columbia Basin. The National Marine Fisheries Service does not. Nor has NMFS demonstrated the requisite diligence.

What Columbia and Snake River Wild Salmon Really Need



Sierra Club

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WHAT THE BALD EAGLE is to the nation, wild salmon are to the Pacific Northwest. But tragically this noble symbol of our region is slipping to the brink of extinction. The American Fisheries Society counts more than 200 stocks of wild salmon, steelhead and ocean-migrating trout as endangered, threatened, or at risk in the Northwest.

Before the era of big hydro-power development began in the Depression with the erection of Bonneville Dam, the greatest salmon watershed on the entire Pacific Ocean—the Columbia River Basin—annually saw 16 million adults enter the river headed for spawning beds as far upstream as Canada and central Idaho. Today the number has slipped to some 2 million fish. Of these, at best 300,000 are wild salmon; the rest are hatchery stocks.

With the decline of salmon, we lose more than a regional symbol and suffer more than another erosion of environmental quality. The demise of salmon runs is a dollars-and-cents loss as well when an entire regional fishing industry is at risk, including commercial operations which, in many cases, have been passed down for generations. Even with the severe de-

clines, salmon net the regional economy some 60,000 jobs directly and \$1 billion annually in income. This is a vital economic base for many communities throughout the Northwest, and could be a much stronger one if salmon runs are healthy and productive.

Wild salmon populations have fallen especially sharply in the Snake River Basin. Starting in December 1991, the National Marine Fisheries Service (NMFS) listed wild Snake River sockeye, spring, summer, and fall chinook salmon for protection under the Endangered Species Act. In 1991, only four adult sockeye salmon returned to spawn in Idaho; only one came back in 1992. Coho salmon in the Snake were officially declared extinct in 1985.

Why are wild salmon vanishing? Wild fish die from a number of causes: blockage of river migration, over-harvesting, loss of habitat, excessive reliance on hatcheries, and more. However, in the Snake and Columbia Rivers, the number one killer is hydroelectric development.

Dams fatally alter journey to sea for tiny salmon fingerlings

BETWEEN 1931 AND 1974, the U.S. Army Corps of Engineers built eight huge mainstem dams—four on the lower Snake River and four on the lower Columbia—without any way to provide safe passage for migrating juvenile salmon. Ladders were installed

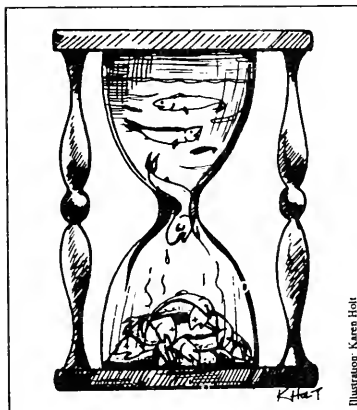


Illustration: Karen Holt

The Sierra Club Wild Salmon Campaign seeks to protect and restore wild salmon runs throughout the Pacific Northwest. **What Columbia and Snake River Wild Salmon Really Need** is one of a series of Sierra Club discussion papers on restoration of wild salmon. Written by Jim Baker, Sierra Club Columbia Basin Field Office and Julia Reitan, Sierra Club Northwest Office; with editorial assistance by Loren Bodi and Katherine Ransell, American Rivers Northwest; Tim Stearns and Pat Ford, S.O.S. Save Our Wild Salmon; with funding from the Bullitt Foundation. © Copyright Sierra Club, January 1993. Printed on recycled paper.

at the dams for adult passage upstream, but no accommodation was made for smolts going downstream. According to the Oregon Department of Fish and Wildlife, more than 95% of man-caused mortalities of the threatened and endangered salmon in the Snake

River Basin are due to this blockage by these dams.

Dams slow the river to a deadly crawl

THE DAMS on the Columbia and Snake Rivers have effectively

turned the rushing waters of once-mighty rivers into a string of slack lakes. This has greatly lengthened the time it takes juvenile salmon to migrate to the sea. Before the dams were built, juvenile fish from central Idaho, for example, were flushed to the ocean in a week or less. Now it takes forty days – or even longer in drought years.

Increased travel time harms migrating smolts in multiple ways. First, they are undergoing the biological changes that transform them from freshwater to saltwater fish. Once these changes begin, there is only so long that the smolts can be in the river before their changing physiology becomes a death trap rather than a survival mechanism.

Second, slow travel time increases juvenile fish mortality because it makes them more vulnerable to disease and predators, especially squawfish, which thrive in the still waters of the reservoirs. Because of the dams, there are more predators than ever before, and it is easier for them to prey on slowly drifting smolts.

Using barges to ship small salmon out to sea has only served to delay real solutions

THE CORPS OF ENGINEERS and other federal agencies have engaged for the last 15 years in a massive program to capture smolts at upstream dams and transport them by barge and truck to the sea. Collecting the small fish inflicts injuries and severe physical stress that leads to high mortality when combined with crowded, unnatural, disease-breeding conditions in the barges and tank trucks.

Furthermore, fish taken out of the river do not experience the same "imprinting" process that

Action Agenda

FOR COLUMBIA AND SNAKE RIVER WILD SALMON

- **KEEP THE FISH IN THE WATER!**— We must get juvenile salmon past the dams, power turbines, and slackwater reservoirs safely—without barging or trucking them down to the sea. Sending fingerling salmon downstream by loading them onto boats is outrageous, and besides, it doesn't work.
- **RUN THE RIVER MORE LIKE A 'RIVER'**— At peak spring migration times we must manage the dams and reservoirs so that young salmon are carried quickly to the sea. This means temporarily drawing down the Lower Snake River reservoirs and sending more water downstream through the Columbia in order to achieve biologically necessary smolt travel time. Increasing water speed during juvenile migration will greatly reduce the death toll on fingerlings that now drift slowly in the slack water of the reservoirs, falling victim to predators, disease, and disorientation.
- **SMART ENERGY AND WATER USE PLANNING ARE 'BEST BUYS'**— Lowering the Snake River reservoirs during the peak juvenile migration and sending more water down the Columbia will require some modifications from business-as-usual. But there are workable, cost-effective ways to accomplish these vitally necessary changes. Energy efficiency, fuel switching, seasonal exchanges on the regional power grid, and improved water conservation for irrigators are all smart investments and will help bring back once teeming numbers of wild salmon.
- **SAVE OUR WILD SALMON!**— Hatchery fish are no substitute for wild salmon. Healthy populations of wild salmon are essential to maintain the genetic diversity and survival instincts that will assure long-term success of salmon in the Northwest. Maintaining and restoring fish habitat and watersheds are clearly essential.

helps them find their way back as adults. Although the Corps relies heavily on barging juvenile fish, some biologists have reported that barging may have a negative impact on the numbers of wild salmon that return to spawn. And, of course, despite the Corps' best and expensive efforts at barging, wild salmon stocks in the Snake River and elsewhere have continued to decline toward extinction.

We can fix the dams and make the river work—for salmon and for us

CONSERVATIONISTS and fish advocates have called upon the Corps of Engineer to stop the barging and fix the dams—to provide once and for all a safe in-river migration for juvenile fish. Pivotal to this goal is a minimum travel time from spawning bed to the sea.

All the federal agency, state agency, and tribal fish biologists in the region who have banded together in the Columbia Basin Fish and Wildlife Authority, have unanimously stated that travel time (as measured from Lower Granite to Bonneville Dams) must be reduced to 15 days at most.

One way to achieve the travel time goal is simply to flush more water down the Snake and Columbia Rivers during the peak juvenile fish migration in April-June. There is adequate stored water in the Columbia River system to augment flows as needed. However, in the Snake, even draining all existing storage in the basin simply would not reliably meet the biologists' target for smolt travel time.

That is why conservationists have turned to the other way to achieve the travel time goal: drawdowns—lowering the eleva-

tions of the reservoirs behind the four Lower Snake dams (and the John Day project on the Lower Columbia) during the juvenile fish migration. As the man-made lakes become narrower and shallower, the same amount of water flow in the river system runs faster and faster.

In a 1992 Environmental Impact Statement, the Army Corps of Engineers concluded that a drawdown of the four Lower Snake reservoirs, as environmentalists have proposed, would meet the federal, state, and tribal biologists' travel time objective—what the fish really need—every year, regardless of droughts or any other adverse conditions.

Changing the dams will create problems—but they are solvable

DRAWDOWNS and greater water flows do pose some problems, but none without *affordable* solutions.

- As currently configured, adult fish ladders and juvenile bypass screens on the Lower Snake dams would become inoperable at lower water levels. But the dams can be modified so that facilities operate at lower reservoir levels.
- Drawdowns would leave irrigation pumps high and dry. But the in-takes can be extended so that the pumps continue to work.
- The overall salmon "hit" on the hydropower system can be easily made up through already existing programs in energy efficiency, fuel-switching, seasonal renewable resources such as wind power, and seasonal electricity exchanges between the Northwest and California. Hydroelectric generation decreases—but does not stop—

during reservoir drawdowns.

- Investments in improved efficiency for irrigation, conservation, and water bank leasing offer good options to make more water available when needed most for salmon.
- Barge navigation in the Lower Snake from Pasco, Washington to Lewiston, Idaho would temporarily shut down during the drawdowns. However, an analysis by agricultural economists at several regional universities has concluded that market forces coupled with increased storage capacity, could accommodate a temporary interruption to river navigation with little or no impact on prices or jobs.

The structures and operations of the Corps' fish-killing dams can be changed—and at a cost that is modest. According to a blue-ribbon economics panel for the National Marine Fisheries Service, the cost would translate to a small hike on current electricity rates of just 2–4 percent.

Drawdowns of the four Lower Snake reservoirs combined with flow augmentation in the Lower Columbia can reliably meet the travel time objective set by the region's biologists—and we can end the failed practice of loading small salmon into barges. Unless and until we give young migrating fish a safe, in-the-river passage to the sea, other efforts such as improvements in fish habitat, will not be effective and will not recover these endangered and declining wild fish runs.

Fishing plays a role, but not the key role in salmon decline

WITHOUT QUESTION, over-fishing took place in the past. Today,

however, there is effectively no legal in-river catch on three of the four Snake River salmon species now listed under the Endangered Species Act. And over this century, there has been significant, and steadily increased, regulation of commercial fishing in the Columbia and Snake Rivers.

For mixed-stock runs, where wild and hatchery fish swim upstream together, harvest practices must change so that hatchery-bred fish are caught and wild salmon continue safely to their spawning grounds. There are ways to reach this goal including marking all hatchery fish, re-allocating harvests under the U.S./Canada fisheries treaty, and converting to new harvest methods.

Instead, the utility industry has argued vehemently for a steep reduction, or even moratorium, on commercial fishing, diverting attention from the role that hydropower dams have played in wiping out salmon.

Hatcheries create more problems than they solve

SINCE WORLD WAR II as the dams have taken a greater and greater toll on salmon runs, hatcheries were built to supply fish for harvest. However, hatcheries too often produce weak, diseased fish which are genetically inferior to their wild ancestors. Hatchery production narrows genetic diversity, which greatly impairs the ability of a species to survive over time. Inter-breeding of native and hatchery salmon degrades the wild runs.

While hatcheries can play a role in producing fish for harvest, they are no substitute for the long-term assurance of healthy wild salmon runs.

Habitat protection is key—but must go hand in hand with fixing the dams

EROSION from clearcutting in prime watersheds has muddied rivers and silted-in salmon spawning gravel beds throughout the Northwest. Heavy cattle grazing of streamside range areas has trampled the life out of salmon habitat in the Columbia Basin.

Any regional salmon recovery effort must include significant reductions in short-sighted natural resource uses that destroy productive fish habitat. However, making the Columbia and Snake Rivers safe for salmon must underpin all efforts to preserve and restore high-quality fish habitat.

We can and must modify the dams and their operation before it is too late

THE DRAMATIC decline of wild salmon runs in the Pacific Northwest has reached a crisis. It is high time for action to save this vital part of our Northwest heritage, environment, and economy.

For the past thirty years, the federal hydropower agencies and the utility industry have tried everything but making the river work for fish. They have failed.

That is why fish advocates and conservationists have proposed physical and operational modifications to the Snake and Columbia mainstem dams in order to provide a safe, in-the-river migration for juvenile salmon.

We can have a river system that works for fish, energy, and our other needs. But it calls for commitment to change the currently destructive operation of the Columbia and Snake River dams. With businesslike investments we can make these rivers work for wild salmon and for us all!

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Young Salmon Need To Migrate In Rivers—Not In Trucks and Barges!



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For the last 15 years the U.S. Army Corps of Engineers has collected tiny, migrating juvenile salmon and physically hauled them downstream in tank trucks or barges around the eight huge federal dams that span the lower Columbia and Snake Rivers. Yes, they have "taken fish out of water" and put them on trucks and barges rather than undertake changes to the dams and their operation to make the hydropower system less deadly for fish.

Not only is it a ridiculous "solution" to transport fish in barges, but it simply has not worked—it has not reversed the march to extinction of wild salmon in the Columbia and Snake Rivers.

A new analysis indicates that

the barging and trucking program may actually be *more* detrimental to wild salmon than negotiating the lethal corridor of dams and reservoirs. And, the data that the Army Corps of Engineers has always used to justify the barging program has been shown by a team of fish biologists to be seriously flawed.

This new information, plus fifteen years of barging experience while salmon populations have continued to col-

lapse toward extinction, has now led fisheries agencies to question

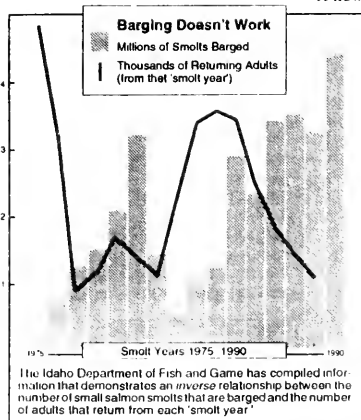
the effectiveness of the barging program they once supported.

SALMON ADVOCATES and conservationists have long believed that to save threatened and endangered wild salmon in the Columbia and Snake River basin, fish barging must end. Instead of using the fish barging program to create the illusion of fish "protection," the Army Corps of Engineers must begin modifications to the mainstem dams and their operation in order to provide safe, in-the-river migration for fingerling salmon.

Why hauling salmon downstream doesn't work—and will never work

Under the Corps' fish barging program, migrating juveniles are captured at upstream dams — Lower Granite and Little Goose in the Snake River—and loaded into trucks and barges for the one- or two-day trip to below Bonneville Dam. This creates serious problems, especially from a fish's point of view:

Physical Stress—At each dam, the fish are sucked into the powerhouse intakes where about half of them are diverted into a bypass channel inside the dam. Then the fish are shunted at high pressure through a 1/4-mile long pipeline to a facility where they are "de-watered" so that they can be sorted by size. They are then placed in holding tanks and finally are crowded into trucks or



The Sierra Club Wild Salmon Campaign seeks to protect and restore wild salmon runs throughout the Pacific Northwest. **Young Salmon Need To Migrate In Rivers—Not In Trucks and Barges** is one of a series of Sierra Club discussion papers on restoration of wild salmon. Written by Jim Baker, Sierra Club Columbia Basin Branch Office and Julia Reitan, Sierra Club Northwest Office; with editorial assistance by Lorri Bodi and Katherine Ransel, American Rivers Northwest Office; Tim Sicarns and Pat Ford, S.O.S. Save Our Wild Salmon. © Copyright Sierra Club, May 1993. Printed on recycled paper.

barges for the trip downstream.

It takes only common sense to predict the outcome: Capturing and handling tiny fish in this way inflicts injuries and puts them under severe physical stress that makes them much more susceptible to predators, disease, and the natural risks of life in the ocean.

The impact appears to be especially severe on wild salmon because they are totally unaccustomed to man-made environments, crowded holding tanks, and physical handling.

Disease—In the truck tanks or barge holds, the juveniles are faced with a crowded, alien world.

In these closely confined conditions, disease can spread much more efficiently. (Anyone with small children in day-care will understand this principle.)

Hatchery fish almost always carry diseases such as BKD (bacterial kidney disease) and the holding tanks in the barges create a prime opportunity for disease to spread. Studies by the National Fisheries Research Center [Elliot and Pascho] have documented that BKD infections can occur during collection and barging, and that this disease is especially deadly to threatened and endangered wild chinook and sockeye.

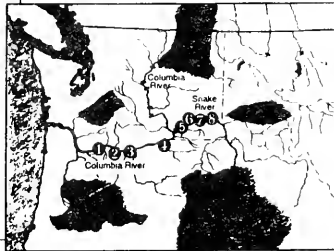
Imprinting—Furthermore, fish taken out of the river and loaded onto a barge do not experience the same "imprinting" process that helps them find their way back as adults. Scientists don't fully understand how a tiny salmon "maps" its route downstream so that it can return to the exact same place years later to spawn and die. But there can be little doubt that being transported for hundreds of miles in the "black box" of a barge or tank truck is a huge interruption of this awe-inspiring natural ability.

WHAT MATTERS MOST is the bottom line: Fifteen years of capturing and transporting smolts has not reversed the precipitous de-

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Map courtesy of the Northwest Power Planning Council

cline of wild salmon. The barging program has created just another unnatural, technological ordeal for tiny salmon already struggling to survive in greatly altered river conditions.

If barging has failed to help salmon, why continue???

Because continuing the Corps' fish "mass transportation" program—if it worked—would require fewer changes to business-as-usual, various river users who benefit from the status quo have continued to promote the program. Most notably these proponents include the direct service industries (DSIs), mainly aluminum smelters drawing cheap federal electricity directly from the Bonneville Power Administration, many of the region's utilities, and the Pioneer Ports River Alliance, a coalition of the Snake River seaports of Lewiston, Clarkston, and Whitman County.

They promote three fish barging "myths".

MYTH #1 Barging is good for fish!

■ The Corps of Engineers has long claimed that the barging program helps salmon in the Columbia and Snake Rivers. They support the claim with two "life-cycle" studies conducted in 1986

and 1989 on spring chinook.

These studies showed, according to the Corps, positive "transportation benefit ratios" of 1.6:1 and 2.5:1. This means, they say, that for every naturally migrating fish that returned as an adult, 1.6–2.5 barged fish returned.

However in December 1992, a panel of fisheries experts from the U.S. Fish and Wildlife Service, Idaho Department of Fish and Game, Washington Department of Fisheries, Columbia Basin Fish and Wildlife Authority, and Fish Passage Center re-evaluated the data in the life-cycle studies and identified serious flaws in the Corps' conclusion of positive benefit from barging.

Chaired by Fred Olney of the U.S. Fish and Wildlife Service, the panel found gross miscounting of fish, tagging smolts and counting adults at the dams not at spawning grounds (which is the relevant indicator of a successful return), and data that were mishandled or so limited that they are statistically invalid.

A significant problem cited by the Olney panel was the Corps' failure to differentiate between wild salmon and hatchery fish. This is the critical issue because *wild* salmon are the threatened and endangered creatures. And the physical stresses from handling and crowding appear to be severe on wild fish.

The Olney panel pointed out that most of the fish counted in the Corps' two studies were in fact hatchery fish. Where the panel was able to differentiate between wild and hatchery stocks, the data indicated a *negative* transportation benefit ratio for wild salmon!

The final report of the Olney panel concluded,

It is apparent that [fish] transportation is not a sub-

stitute for provision of good in-river migration conditions for many of the salmon stocks evaluated in the [Corps'] studies. For some stocks it appears that transportation may have been detrimental to fish survival.

MYTH #2 Fish are 'safe' in a barge.

■ The Corps of Engineers' asserts that 95% or more of their transported smolts are released alive. Barging proponents use this as proof, they say, that salmon are fine in a barge so it must be something else that threatens them, "ocean conditions," for example.

However, the 95% survival statistic completely ignores the delayed effects of barging. Salmon smolts may indeed survive the 1–2 day ordeal and "swim away," only to die in the Columbia estuary or the ocean from injuries and physical stress inflicted by capture, crowding, handling, and exposure to disease. To blame "ocean conditions" is deliberately misleading.

It is especially foolish because both barged and non-barged fish must face the same ocean conditions. Yet it appears that barged fish return from the ocean at a much lower rate than fish that successfully make the downstream journey in the river. The Idaho Department of Fish and Game has compiled data indicating that when greater numbers of fish are barged, fewer adults from those "smolt years" return to spawn (see chart on front).

Another delayed effect of barging and trucking may be that adult salmon are unable to successfully find their way back upstream. The Corps of Engineers' "life-cycle" studies did not even track whether barged fish could

THE DAMS

- 1 Bonneville, 1938
- 2 The Dalles, 1957
- 3 John Day, 1968
- 4 McNary, 1953
- 5 Ice Harbor, 1961
- 6 Lower Monumental, 1969
- 7 Little Goose, 1970
- 8 Lower Granite, 1975

The eight federal main-stem dams take the greatest toll on threatened and endangered Snake River salmon. Other dams have permanently blocked vast areas of salmon habitat (dark shading).

successfully make their way back to their natal stream.

THE 95% SURVIVAL statistic is both deceptive and irrelevant. The law, and common sense, tell us that *natural conditions*—not artificially engineered environments—are needed to assure species survival.

MYTH #3

We'll build a better fish trap.

■ Proponents of barging argue that all we need to do is make it work better. Yet just to replace the adults which spawn in central Idaho, to bring the population curve up to level from its current downward trend, the transportation benefit ratios would have to rise to 7:1 or 10:1—a three- or four-fold improvement over the "best" results in the Corps' two studies. And to achieve salmon restorations in the Snake Basin, biologists would want to see the ratio between 20:1 and 30:1.

In a program that the Corps has already been working to improve for fifteen years, such huge leaps forward are little more than a fantasy. Nevertheless, schemes such as net-pen barges and new smolt capture devices have been proposed.

Two decades ago the Washington Department of Wildlife tried a net-pen barge to transport steelhead smolts (far less fragile than salmon) on the Chehalis River. They cancelled the experiment when the nets tore scales off the fingerlings in massive numbers. Net-pen barging in the Snake and Columbia would prove an expensive disaster too.

A new smolt collector above the eight mainstem dams and reservoirs should also be rejected. Even if intractable engineering obstacles could be overcome, it would still not solve the key prob-

lems: It would not capture all migrating fingerlings. It would not help smolts coming out of downstream tributaries. It would not separate wild from hatchery fish, and it would not eliminate injuries or stress from capture.

Stop barging and make the rivers safe for salmon.

The cockeyed notion of taking fish out of rivers and loading them onto barges was instituted as a desperate, temporary measure fifteen years ago when it became clear that the Columbia and Snake River hydropower system was deadly for small salmon: The huge reservoirs fatally slowed migration to the sea and passage through the massive power turbines was lethal.

The barging program was designed to avoid these problems, but not solve them. In doing so, the Army Corps of Engineers created a whole new set of obstacles that have proven equally, perhaps more deadly for wild salmon. Now that fisheries agencies that once supported the barging program are challenging its effectiveness, it's time to end this unnatural charade.

Common sense and a millennia of evolution tell us that fish belong in the river. The Endangered Species Act requires that threatened and endangered species be protected in their natural habitats. And the Northwest Power Planning Act specifically calls for river "flows as necessary" for the survival of salmon in the Snake and Columbia Rivers. It's time to modify the dams and their operation so that we recreate a semblance of the natural conditions that salmon need for survival.

This can best be done by increasing river velocity with a package of flow augmentation

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- and reservoir drawdowns. Only a solution that provides what salmon really need—a safe and swift migration in the river—will recover this Northwest legacy.
- The stakes are high. What were once some of the world's most magnificent salmon runs are now on a barge to extinction.
- It's time to dock the barges and fix the river!

Drawdowns of Lower Snake Reservoirs and John Day Pool Offer Greatest Promise to Provide In-River Passage for Migrating Juveniles of Idaho's Threatened and Endangered Salmon

by Jim Baker, Sierra Club

Huge hydroelectric dams — four each on the mainstems of the Lower Columbia and Lower Snake Rivers — inflict the bulk of preventable mortalities on the wild threatened and endangered salmon from the Snake River Basin. The U.S. Army Corps of Engineers built these eight dams without any provision for safe passage by migrating juvenile salmon from central Idaho. This is an historical fact.

Mainstem Dams Are the Predominant Killer of Wild Salmon from the Snake River Basin

Thus biologists at the National Marine Fisheries Service, the Northwest Power Planning Council, the Columbia Basin Fish and Wildlife Authority, and the Bonneville Power Administration have concluded that the dams inflict at least 80-95 percent of the human-caused mortalities on wild Snake River salmon. Any recovery plan for these fish must put 80 percent of the effort into 80 percent of the problem.

These eight dams inflict heavy mortalities on migrating juvenile salmon in two ways: by impeding passage at the dam structures themselves, and by slowing movement through the reservoirs. While the precise relationship has not been established to date, more than 10,000 years of successful salmon runs, more than 20 years of the best available field data, and the sound professional judgment of agency and Tribal biologists all confirm that, when water runs downhill faster in the Columbia-Snake Basin, salmon swim upstream in greater numbers. Recent reports which find no or an uncertain relationship between flows and juvenile salmon survival were conducted and/or contracted by the Bonneville Power Administration (BPA), electric utilities, factories directly serviced by BPA, or Snake River seaports — all of which oppose substantially greater flow augmentation and the reservoir drawdowns. (For further discussion, see Appendix A.)

Only three means — fish transportation, flow augmentation, and reservoir drawdowns — have been realistically proposed to pass migrating juvenile salmon past the dams and through the reservoirs.

Juvenile Fish Transportation Is a Failed Experiment

While the Corps of Engineers has conducted its fish transportation experiment for more than 15 years, Snake River salmon populations have dropped to the brink of extinctions. The Corps has never demonstrated any

biological benefit from barging and trucking juvenile fish, nor identified scientifically any way to substantially improve the program and its results for fish. A 1992 review by biologists from several fisheries agencies and Tribes concluded, "It is apparent that [fish] transportation is not a substitute for provision of good in-river migration conditions for many of the salmon stocks evaluated in the [Corps'] studies. For some stocks it appears that transportation may have been detrimental to fish survival." (See *Review of Salmon and Steelhead Transportation Studies in the Columbia and Snake Rivers, 1984 to 1989*.) Barging young fish has not worked, does not work, and can not be made to work. Thus a successful and effective salmon recovery effort must act immediately to improve in-river migration conditions.

Lowering John Day Pool Is a Highly Cost-Effective "Best Buy"

For the Lower Columbia, the Northwest Power Planning Council among others has proposed to dramatically increase flow augmentation and to lower the John Day reservoir to minimum operating pool. As the longest, fattest, slowest, and most lethal of reservoirs in the salmon migration corridor, John Day requires this modest drawdown to take full advantage of flow augmentation regimes.

And compared to additional flow augmentation over and above the "water budget," the lowering of John Day reservoir to minimum operating pool offers considerably greater cost-effectiveness. The Northwest Power Planning Council estimates that lowering John Day achieves the flow augmentation equivalent of 3.1 million acre-feet! Every such calculation of flow augmentation equivalence indicates clearly that operation of John Day at minimum operating pool is a "best buy." (See backgrounders.) This action should proceed immediately.

Drawdowns in the Snake Basin Provide More Water Velocity More Reliably

Flow augmentation, in and of itself, is not a reliable strategy for salmon recovery in the Snake Basin. A strategy that relies solely upon flow augmentation produces relatively slower migration speeds, undergoes curtailments during drought conditions, and can limit water available to farm irrigation and firm hydropower generation. As a result, the "water budget" program of flow augmentation during the last decade has not stopped salmon declines, despite expensive annual investments of precious water resources.

By comparison, drawdowns of the four Lower Snake reservoirs below minimum operating pool can attain faster migration speeds, can do so even in dry water years, and emphasize one-time capital investments. Based upon calculations and initial tests, the drawdowns promise greater biological benefit, reliability, and cost-effectiveness in relieving the juvenile migration blockage at the dams.

Flow augmentation is a controlled release from upstream storage reservoirs in order to speed up water in the lower pools through which the salmon migrate. Flow augmentation in the Snake can only sustain a lower target of 85,000 cubic feet per second in only half of recorded water years.

In contrast, the proposed drawdowns in the four Lower Snake reservoirs can attain a higher target for water speed (the equivalent flow of 140,000 cubic feet per second at full pool) reliably in 96 percent of recorded water years. This target simply exceeds the physical capacity of any flow augmentation regime. In 1990, federal, state, and Tribal biologists stated that salmon require a minimum flow of 140,000 cubic feet per second in the Lower Snake during the peak spring juvenile migration.

Although untested in full-scale operation, reservoir drawdowns show substantially stronger salmon recoveries in computer projections run by the Northwest Power Planning Council and the Idaho Department of Fish and Game — perhaps as many as 60,000 spring chinook by early in the next century according to the former. The drawdowns "work" because, as reservoir elevations drop, the same amount of water volume down the river moves much faster through the manmade pool.

Impacts from Drawdowns Are Capable of Successful Mitigation

Drawdowns of the four Lower Snake reservoirs below minimum operating pool during the peak juvenile salmon migration would curtail or completely interrupt operation of fish passage equipment, hydropower generators, irrigation pumps, and navigation locks. However, if the drawdowns are limited to the 10-week peak of the juvenile migration (beginning April 1 with re-fill on or before June 15), these impacts can be successfully and economically mitigated.

The U.S. Army Corps of Engineers has advanced several designs for dam modifications, principally to adult and juvenile fish by-pass equipment, which would then continue to operate safely during the drawdowns. The two leading design options are a constant pool drawdown at 33-40 feet below normal elevation, and a natural river drawdown with full evacuation of the reservoir. Provided that re-fill begins on or before June 15, all four reservoirs would return to normal elevations within hours in all water years under all drawdown design options.

Compared to flow augmentation regimes, drawdowns take a much smaller "hit" on firm hydropower generation. Because hydropower generators can continue to run at reduced outputs, because the fuel for hydroelectric generation can remain in upstream storage reservoirs, firm energy losses due to drawdowns would not exceed 150 megawatts. Starting in 1991, BPA has signed contracts with California utilities for seasonal electricity exchanges which deliver several times more power than this

maximum 150-megawatt "hit" from drawdowns. Conservation and/or renewable generating resources such as wind power can also make up for hydropower lost in drawdowns.

Neither the Corps nor farmers have identified any irrigation pump intake that can not be extended to function at lower pool elevations.

In mitigation of a 10-week interruption of barge navigation in the Lower Snake River, farmers can ship crops either before and after the drawdowns, or by rail. New grain storage and/or improved railroad service would give farmers the benefit of better competition in the shipping marketplace. Reviewing the impact of a 2-3 month navigation lock outage, agricultural economists at Washington State University, Oregon State University, and the University of Idaho predict that the grain shipping marketplace would react to eliminate or minimize losses by local farmers. The agricultural economists conclude, "These market-driven adjustments are likely to mitigate some of the impact of a river drawdown. Those estimates which predict devastating impacts on the region's shippers could be seen as negotiation postures." New storage and/or better rail service would keep farmers whole if and when the marketplace does not provide equal prices to pre- or post-position crops around the drawdown window, and/or to convert to grain shipping by train. (See *The Effect of Lower Snake River Reservoir Drawdown on Barge Transportation*.) Predictions of multi-million dollar losses and business closures in the Lewiston-Clarkston area alone assumed a drawdown of 5 months duration.

During the March, 1992 structural test of drawdowns at the Lower Granite and Little Goose pools, no damage occurred which has not been repaired, and can not be repaired permanently.

Costs of Drawdowns, Including Successful Mitigation of Economic Impacts, Are Affordable Investments

Contrary to the undocumented allegations of those who have sought to panic and divide the public, reservoir drawdowns and other salmon recovery measures can be brought on-line while maintaining the current economic and jobs base of the local area. Farmers did not create the juvenile salmon blockage at the dams; farmers and other river users impacted by drawdowns can, and should, be kept whole.

The two leading design options for dam modifications — a constant pool drawdown at 33-40 feet below normal elevation, and a natural river drawdown with full evacuation of the reservoir — are estimated to cost \$1.3 and \$4.9 billion respectively. These are separate price tags for different designs, not a range of possible expenses. Under contract to the Northwest Power Planning Council, Harza Engineering has identified several ways to substantially reduce the Corps' cost figures.

Under federal law, the expense of salmon recovery can fall to national taxpayers or Northwest ratepayers. If consumers of Bonneville Power Administration electricity who benefit from the dams pay for the implementation of drawdowns, Northwest ratepayers would see their bills go up by less than 5 percent total — in all likelihood, phased in at 1/2 percent annually over a decade. For capital expenditures of this type, BPA can borrow from the U.S. Treasury and amortize costs over a 50-year repayment schedule. The \$1.3 billion capital cost of the entire Lower Snake Reservoir drawdown program — annualized at \$122.5 million — would translate to less than a 5 percent hike in current BPA wholesale electricity rates.

These cost figures are "worst case" numbers provided by the Corps and BPA. In any case, a one-time 5 percent increase in wholesale electricity rates — phased in over several years — simply does not represent any serious threat to the Northwest economy. Typically only half of BPA wholesale electricity rate hikes pass through to retail prices.

As an interim measure, lesser degrees of flow augmentation can offer no small benefit to migrating juvenile salmon, and can proceed without undue economic impact. However, approaching levels comparable to reservoir drawdowns, flow augmentation would sap hydropower generation and irrigation agriculture — costs which come with every salmon migration season. According to a blue-ribbon report from an Economics Technical Committee sponsored by the National Marine Fisheries Service, costs for reservoir drawdowns would roughly split between one-time capital investments and operating expenses, while the price for flow augmentation falls entirely in operating costs borne year after year. (See Table 1.)

Among Other Benefits, Drawdowns and Salmon Recovery Would Boost Economic Productivity and Jobs Creation Locally and Regionally

Because impacts can be successfully mitigated with such a modest increase in electricity rates, testing and implementation of Lower Snake reservoir drawdowns would only add to the regional and local economies. With drawdowns, the region's consumers of BPA power would make a one-time investment in fish passage rather than pay every year for less effective and less reliable flow augmentation. Drawdowns then would position the Pacific Northwest for a future of sustainable fish and electricity production.

Locally the drawdowns would create new jobs. In a preliminary estimate, the U.S. Army Corps of Engineers believes that 40 percent of the \$1.3 billion expense associated with modifications of the four dams — or approximately \$520 million — would go to construction labor. This investment would produce nearly 20,000 new job-years at the dams, and the multiplier effect of this new income would spur significant economic growth in the Lower Snake River area.

Recovery of Snake River salmon to harvestable populations would generate new fishing-based jobs and substantial economic productivity within the watershed and beyond. Steelhead sport-fishing now puts some \$15 million annually into the Idaho economy; salmon are potentially worth three times that amount or more. U.S. sport anglers spend an average of \$985 per chinook salmon caught in Canada. Moreover, sport-angling for salmon would create new jobs and income in rural communities of central Idaho which have suffered a protracted economic downturn. For example, the eight-day season on spring chinook surplus to the Rapid River Hatchery in 1992 poured more than \$250,000 into the economy of nearby Riggins, Idaho and its population of 400. Regionally, even in its currently very depressed state, salmon fishing — commercial, sport, and Tribal — still generates \$1 billion annually and maintains 60,000 jobs directly in the Northwest economy.

The Corps Should Immediately Modify Lower Granite Dam, and Test Drawdown Operation

The federal agencies responsible for Snake Basin salmon recovery, the National Marine Fisheries Service and the U.S. Army Corps of Engineers, are not acting diligently or promptly. It is the announced intention of the National Marine Fisheries Service and the U.S. Army Corps of Engineers to take 20 years for testing and implementing reservoir drawdowns.

Declining salmon runs in the Snake River Basin do not have this time to lose. Paralysis by analysis will doom Snake Basin salmon to extinction. According to the review by agricultural economists, the single largest impact on the local economy comes from uncertainty about the salmon recovery plan and measures.

Instead, the Corps should immediately modify Lower Granite Dam, and test drawdown operation. To extend the adult fish ladder, install a low-elevation juvenile by-pass channel, armor reservoir banks, and provide economic mitigation for a one-pool Lower Granite drawdown would cost less than \$95 million — an affordable and reasonable investment for a measure which holds so much promise. The Corps of Engineers should proceed with this prototype program immediately and with all due speed. Following a successful test of the Lower Granite modification, the Corps should implement drawdowns for all four Lower Snake reservoirs.

TABLE 1. **Reservoir Drawdowns vs. Flow Augmentation in the Lower Snake River**

In tabular form, reservoir drawdowns and flow augmentation stack up against each other as follows:

	Drawdown	Augmentation Case 1	Augmentation Case 2
Flow Target (cubic feet per second) (Drawdown is equivalent flow at full pool.)	140,000	85,000	140,000
Firm Hydropower Losses (megawatts) (Sources: Economics Technical Team, National Marine Fisheries Service; Bonneville Power Administration)	75-150	412	2800-4500
Operating Costs (Annualized 1990 \$ million) (Source: Economics Technical Team, National Marine Fisheries Service)	50-112	67-120	153-1169
Capital Costs (Annualized 1990 \$ million) (Sources: Economics Technical Team, National Marine Fisheries Service; U.S. Army Corps of Engineers)	122.5	0	0
Combined Program Costs (Annualized 1990 \$ million) (Sources: Economics Technical Team, National Marine Fisheries Service; U.S. Army Corps of Engineers)	172.5-234.5	67-120	153-1169
Probability of Achievement (percent of water years) (Source: U.S. Army Corps of Engineers)	96	50	0

Compared to flow augmentation at 85,000 cubic feet per second, the reservoir drawdowns achieve the equivalent of 150 percent greater river flows, offer nearly perfect 96 percent reliability, and control costs by emphasizing one-time capital expenditures. Federal, state, and Tribal biologists have concluded that 140,000 cubic feet per second is a minimum flow target for salmon survival. Due to its relative unreliability, a flow augmentation regime with a target of only 85,000 cubic feet per second would probably serve best as an interim measure until completion of dam modifications.

APPENDIX A. Relative Role of Other Causes of Salmon Mortality

Salmon losses at the mainstem dams are well documented in hard scientific research. Nonetheless, in what appears to be a diversionary tactic in the public debate over Columbia-Snake Basin salmon recovery, various commentators have pointed up other causes of salmon mortality, including habitat degradation, harvest, and "ocean and/or climatic conditions."

Habitat Degradation: Because the mainstem hydroelectric dams kill the vast majority of Snake River salmon, protection and/or restoration of spawning habitat alone will not save declining Snake Basin salmon stocks from extinction. For example, computer projections by the Northwest Power Planning Council predict negligible increases in wild salmon populations from measures to protect or restore spawning grounds in central Idaho.

The majority of salmon spawning habitat in central Idaho remains in at least good condition. For example, the Frank Church River of No Return Wilderness designated in 1980 — the largest wilderness area in the lower 48 states — protects 95 percent of the prime Middle Fork drainage of the Salmon River. Nonetheless, salmon seedings in this good-to-pristine habitat are falling below 10 percent of carrying capacity.

Land managers should protect pristine habitat, and restore degraded spawning grounds, with particular emphasis on the control of sedimentation and water temperature. These actions alone are inadequate as a salmon recovery effort.

Harvest: Similarly, because the mainstem hydroelectric dams kill the vast majority of Snake River salmon, severe curbs or outright bans on harvest alone will not save declining fish stocks from extinction. In recent years, the states and Tribes have voluntarily established lower rates and time restrictions on off-shore and in-river harvest such that the National Marine Fisheries Service did not identify commercial or Tribal catch as a reason for listing wild Snake River salmon stocks as threatened and endangered. For at least a decade, in-river and off-shore catch on three of the four wild Snake River stocks has been limited to incidental harvest. Since 1978, there has been no general salmon season for Idaho anglers.

Harvest regulators should minimize the incidental take on Snake Basin salmon in mixed stock (wild and hatchery) fisheries through techniques for "catch-and-release" of wild adults. Some techniques include marking all hatchery juveniles, terminal fisheries, and different technologies.

Specifically to reduce harvest impacts on fall chinook, fisheries managers should set a numerical escapement goal and other stock specific management objectives for the wild Snake River run. To date, regulators of the fall chinook catch have only set an escapement goal at McNary Dam on

the Lower Columbia River — not to spawning in the mainstem Snake River. In addition, the United States should negotiate fairly and forthrightly with Canada in current Pacific Salmon Treaty talks.

A ban on commercial and/or Tribal harvest of these Snake River stocks would only lead to larger salmon losses at the dams, and serve to devastate an already depressed industry, its dependent communities, and its workers. One of the best reasons to recover wild Snake River salmon stocks is to rebuild the income and jobs in the very valuable fishing industry.

Ocean and/or Climatic Conditions: Based upon observations of salmon declines in some coastal watersheds which contain no dams, the argument has been raised that dams have little or nothing to do with potential extinctions in the Snake River Basin or elsewhere. This argument assumes falsely that salmon are declining, and more or less at the same rate, in all Pacific Northwest watersheds. But the *1992 Washington State Salmon and Steelhead Stock Inventory* found that 43 percent of 435 wild stocks reviewed in the study enjoy a "relatively healthy" status. This line of reasoning further assumes, that these declines have just one common cause such as "ocean and/or climatic conditions," when these fish die due to a wide range of reasons — manmade and natural.

Moreover, this argument simply has not been demonstrated in sound scientific inquiry. For example, contrary to the widespread publicity, the *1993 Inter-Basin Comparison Study — Phase I Analysis* relies upon an invalid statistical analysis which fails to "prove" any simultaneous decline in salmon production throughout Northwest streams. In violation of standard procedures for statistical analysis, the *Inter-Basin Comparison Study* correlated salmon productivity trends in only a small handful of coastal watersheds to just one dammed basin (the Snake), did not account for sometimes huge differences in numerical magnitudes between data sets, and failed to seek or acknowledge any anomalous data such as healthy productivity trends in undammed coastal streams or in dammed inland watersheds.

Even if researchers do someday verify a common thread or two in the fabric of salmon declines on the West Coast, this would not disprove or invalidate the mass of biological research which has amply demonstrated the predominant role of mainstem dams in the march of wild Snake River salmon toward extinction.

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**REVIEW OF SALMON AND STEELHEAD TRANSPORTATION
STUDIES IN THE COLUMBIA AND SNAKE RIVERS,
1984 TO 1989**

Submitted to the
Columbia Basin Fish and Wildlife Authority

Prepared by the
Ad Hoc Transportation Review Group

December 31, 1992



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Columbia River Coordinator
9317 Highway 99, Suite A
Vancouver, Washington 98665

MEMORANDUM

December 31, 1992

TO: John R. Donaldson Ph.D.
Executive Director, CBFWA

FROM: Chairperson, Ad Hoc Transportation Review Group

SUBJECT: Review of Transportation Studies

This memo responds to the request by the CBFWA Liaison Group for a technical review of the results of transportation studies conducted in the Columbia River basin since the early 1980's. This is part of an evaluation of transportation by the CBFWA which was prompted by a request from the National Marine Fisheries Service (NMFS) to review ongoing studies and to reconsider the current CBFWA policies concerning juvenile fish transportation.

An Ad Hoc Transportation Review Group (Review Group) was appointed by the Liaison Group to conduct the technical review of the studies. The Review Group included Bob Heinith (Columbia River Inter-Tribal Fish Commission), Rod Woodin (Washington Department of Fisheries), Craig Tuss (U.S. Fish and Wildlife Service), Dr. Charlie Petrosky (Idaho Department of Fish and Game), and Dr. Margaret Filardo (Fish Passage Center). Fred Olney (U.S. Fish and Wildlife Service) served as chairperson and Liaison Group member of the Review Group.

The transportation studies of spring/summer chinook salmon at Lower Granite Dam in 1986 and 1989, spring chinook salmon at Priest Rapids Dam from 1984-86 and at McNary Dam in 1987 and 1988, sockeye salmon at Priest Rapids Dam from 1984-88, fall chinook salmon at McNary Dam for 1986-88, and steelhead at Lower Granite Dam for 1986 and 1989 were examined by the Review Group. The most up-to-date recovery information for the studies at McNary and Lower Granite dams were obtained from NMFS. The Review Group relied on published annual reports by NMFS and Grant County PUD for data from the studies at Priest Rapids Dam.

A large volume of data was examined. As a result, the Review Group could only conduct a cursory review of the data. Nevertheless, the Review Group identified several important findings and many questions about the studies. One of the major limitations

of all of the studies is that because of the time lag associated with the recovery data the statistical analyses of the recovery data necessary to validate the results have not been reported. For example, statistical analyses of the recovery data for the Priest Rapids studies conducted from 1984 to 1988 will not be available until the final report is completed. The only statistical analyses reported for the recovery data for the 1986 and 1989 spring/summer chinook transportation studies at Lower Granite Dam are the 95% confidence intervals that were estimated for the transport/control ratios measured at Lower Granite Dam. The usefulness of these confidence intervals is in question because of the wide variation in the survival rates among the individual release groups and because of very poor returns for the 1989 study. However, the Review Group did not have the time to conduct any independent statistical tests.

For each of the transportation studies several paired transport and control groups of marked fish were released over the duration of the study. If recovery information was available by release group it was summarized and reported in this review. Observed recovery rates and transport/control ratios (T/C) were calculated for each release group even if sample sizes were small because poor returns from releases of large numbers of marked fish provided valuable information about the studies. The T/C's for individual release groups were calculated for comparison with other studies and with information on migration conditions. Many of the individual release groups had very poor returns so this data should be interpreted with caution.

Flow data for the years and study periods in question are included at the end of the review report for comparison with the transportation research results. Some comparisons between the flow conditions and the results of the studies were made by the Review Group but limited time prevented anything more than a cursory analysis. There are probably many factors affecting the survival rates from these studies that should be examined closely.

We have also attached a copy of a recent summary of the T.E.C.H. Workgroup's assessment of the model implications of transport survival.

The following are the major conclusions of the Review Group's evaluation of the transportation studies. A more detailed report of findings is attached.

MAJOR CONCLUSIONS

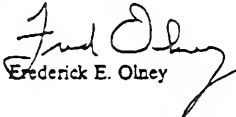
- 1) T/C ratios have been reported for some studies (e.g. 1989 spring/summer chinook at Lower Granite Dam) without a thorough review of the basic data and without statistical analyses to validate the results.
- 2) Return rates and T/C ratios at the dams for the studies examined were not calculated separately for wild and hatchery spring,

summer, and fall chinook salmon because hatchery and wild chinook smolts were indistinguishable when they were marked at the dams.

- 3) The 1986 and 1989 spring/summer chinook transportation studies at Lower Granite Dam are weighted heavily to the earlier migrating hatchery fish. Due to this situation and the high abundance of hatchery fish in the migration, T/C ratios at Lower Granite Dam primarily reflect how well hatchery fish responded to transportation and in-river migration (combined with short haul transport). The recoveries from the spring chinook studies at McNary Dam also are heavily weighted to hatchery returns.
- 4) T/C ratios based on return rates of marked fish at mainstem dams do not measure the effect of transportation on fish survival back to the spawning grounds. The only information available from the spring/summer chinook and sockeye salmon studies on the effect of transportation to the spawning grounds and hatcheries is the upstream coded wire tag data.
- 5) None of the transportation studies have provided estimates of the potential error associated with reading the brands on adult fish sampled at the dams. In response to a request from the Review Group, NMFS examined their raw data to determine brand reading errors for the 1986 and 1989 spring/summer chinook studies at Lower Granite Dam. Five of 22 branded fish jaw tagged at Lower Granite Dam from the 1986 study and sampled upstream for the coded wire tag were either assigned to the wrong release group, the wrong treatment group, or not recorded as a brand recovery at Lower Granite. For the 1989 study one of the 11 jaw tagged fish recovered upstream was a control fish assigned to the wrong release group. While the sample sizes are small, the magnitude of the errors indicate that brand reading error should be assessed for all of the transportation studies.
- 6) T/C ratios based on upstream coded wire tag recoveries for the sockeye salmon studies at Priest Rapids Dam and the spring chinook salmon studies at Priest Rapids and Lower Granite dams in most cases are much lower than the T/C's based on brand recoveries at the dams.
- 7) None of the upstream tributary recovery information for any of the spring and summer chinook transportation studies indicates that transportation was beneficial to the survival of wild fish back to the spawning grounds. Rapid River Hatchery was the only

upstream location that showed possible benefits from transportation for the 1986 and 1989 Lower Granite studies.

- 8) For sockeye salmon at Priest Rapids Dam, 2 of the 9 transportation studies showed possible benefits back to the spawning grounds based on coded wire tag recoveries, 2 showed no benefits, and 5 indicated that transportation may have negatively impacted survival back to the spawning grounds.
- 9) Several of the studies show major differences between earlier and later migrating fish for both the transports and the controls. Combining the data for many of the studies and calculating a combined T/C ratio for the entire study is an over simplification of a complex interaction of several factors that change over time that are affecting the survival of the treatment and control groups.
- 10) It is apparent that transportation is not a substitute for provision of good in-river migration conditions for many of the salmon stocks evaluated in the studies. For some stocks it appears that transportation may have been detrimental to fish survival.


Frederick E. Olney

cc: FPAC
Liaison Group

COLUMBIA BASIN SALMON BRIEFING PAPER

LOWERING JOHN DAY POOL

A Crucial Step toward Providing Safe, In-River Migration for Columbia-Snake Basin Salmon

Wild salmon runs are in peril throughout the Columbia River Basin, especially in its upper reaches. Beginning in December, 1991, the National Marine Fisheries Service listed wild sockeye and wild spring-, summer-, and fall-run chinook in the Snake River drainage for protection under the Endangered Species Act. Many salmon stocks in the Columbia above its confluence with the Snake undoubtedly qualify for similar protective status.

Without question, the predominant cause of human-inflicted mortalities on these wild salmon runs in the upper reaches of this great watershed is hydroelectric development, including the four huge mainstem dams in the Lower Columbia built by the U.S. Army Corps of Engineers without any provision whatsoever for passage by migrating juvenile salmon. Of these, the massive 80-mile long John Day reservoir which can delay migrating smolts for several days is by far and away the most lethal.

At the regional Salmon Summit of 1990-91, all parties agreed to significant and expensive increases in augmentation of Columbia flows in order to help flush juvenile salmon past the mainstem dams. In 1992, the Northwest Power Planning Council incorporated these flow regimes into its salmon recovery plan, and added a measure to lower the elevation of the John Day reservoir to "minimum operating pool" at least from May 1 to August 31 — the peak juvenile migration period in the Lower Columbia. This lowering of the John Day pool has the effect of speeding up water movement in this slowest of reservoirs — without disruption of barge navigation or hydroelectric generation.

Northwest conservationists, fishers, and salmon advocates, therefore, urge the Congress to appropriate a total of \$77 million — approximately half that amount, \$38 million, in fiscal year 1993-94 (FY94) — for the U.S. Army Corps of Engineers to mitigate all impacts (primarily de-watering of irrigation pump intakes) so that John Day reservoir can operate at minimum operating pool by May, 1995. Given that proper mitigation can and will successfully keep any and all impacted river users whole, the lowering of John Day pool represents a "best buy" to save endangered and declining wild salmon throughout the Columbia Basin.

Background: Why lower John Day pool at all?

In passing the Northwest Power Planning Act of 1980, the Congress declared the condition of upper Columbia watershed salmon an "emergency." The Act directed that "flows of sufficient quality and quantity" be provided for salmon through the federal hydropower system on the Columbia and Snake Rivers, and that fish be given "equitable treatment" with other river uses.

But neither sufficient flow nor equitable treatment have been provided. During the 1980s, Snake River coho salmon went extinct, and all remaining wild Snake Basin salmon have been listed for protection under the Endangered Species Act. A number of wild salmon stocks in

the Columbia watershed proper above its confluence with the Snake also merit protection under the Endangered Species Act.

Federal and state fisheries agencies and the region's Native American Tribes attribute at least 95 percent of all human-caused mortalities upon these upper Basin fish to the mainstem hydroelectric dams. The Bonneville Power Administration, which wholesales electricity generated at federal hydropower projects in the Basin, blames the dams for approximately 80 percent of the human-inflicted mortalities on these fish.

To restore sustainable salmon populations, federal, state, and Tribal biologists have stated that the fish need minimum flows through the Lower Columbia River (measured at The Dalles Dam) of 250,000 to 300,000 cubic feet per second (cfs), May 1 to August 31, in all water years. BPA and the regional electric utility industry have agreed to provide flow augmentation with a target of at least 200,000 cfs in the Lower Columbia during the peak juvenile salmon migration.

This target clearly falls short of the biologists' minimum flow standards. Moreover, in drought years such as the Northwest experienced in 1992 and will undergo this year, the flow augmentation program does not even meet the utility industry's target.

According to calculations by the Corps of Engineers, the lowering of John Day would reliably speed up water velocity through the reservoir in dry years and wet. For example, during drought episodes of low river flows, operation at minimum operating pool would cut 1.8 days from the current 11.2 for water particle travel time through the reservoir. So not only does the lowering of John Day make the flow augmentation work much more effectively and efficiently in the Lower Columbia's largest reservoir, it generates the most acceleration to the water when flow augmentation can not — during a drought.

Based upon this law and logic, the Northwest Power Planning Council incorporated the lowering of John Day pool into its salmon recovery plan "to be fully developed, demonstrated, tested, and evaluated for quick implementation, unless it is shown structurally or economically infeasible. [or] biologically imprudent. . ." The Council called for implementation of the measure by April, 1994.

In a November, 1992 report to the Council, the U.S. Army Corps of Engineers concluded that the lowering of John Day pool meets these requirements of the Council recovery plan, and can be accomplished with full mitigation of any and all impacts on river users. The Corps estimated capital costs at \$77 million, and time to install mitigation measures at 4-5 years — half of which would be devoted to design and administration.

Only two alternatives have been proposed to the lowering of John Day pool: collection and transportation (trapping and barging) of juvenile salmon at McNary Dam, or more flow augmentation. In December, 1992, federal, state, and Tribal biologists concluded that barging may, in fact, inflict greater harm than does the currently perilous in-river migration corridor. In any case, the best trapping efficiencies at McNary Dam run to 50 percent. So clearly in-river improvements are necessary for the larger number of young fish which must run the gauntlet of John Day and three other Lower Columbia mainstem dams and reservoirs.

As for greater flow augmentation, the Northwest Power Planning Council staff has calculated that to achieve the same increase in water velocity accomplished by lowering John Day pool would require the additional release of some 4.3 million acre-feet from upstream storage (see chart). For context, the entire storage behind Grand Coulee Dam is 5.19 million acre-feet. Even if such a massive additional flow augmentation were structurally feasible, it would carry a big economic "hit," especially on firm hydropower generation.

Lowering John Day Pool — Page 3

The Northwest must put the fish back in the river, and begin implementing the in-river elements of the Council program. Lowering of the John Day pool can be accomplished without any disruption, much less damage, to the local or regional economy.

Mitigations and Costs

Lowering the John Day reservoir to minimum operating pool will not disrupt shipping navigation, hydroelectric generation, or fish passage facilities. The Corps identified the following impacts, and capital costs for mitigations thereof:

- Extension of irrigation pump intakes: \$12.2 million.** Lowering reservoir elevation by some 11 feet would leave some agricultural irrigation pumps high and dry, but intakes can be extended. The Corps has not identified any pump which can not be so modified.
- Public and private wells: \$3.9 million.** Modifications are necessary for any wells whose water levels may drop due to reservoir lowering.
- Water supply for Umatilla and Irrigon Hatcheries: \$12.3 million.** Both hatcheries have experienced water supply shortages from their first day of operation — before any lowering of reservoir elevation. Therefore, this expense is necessary whether or not the Corps operates John Day at minimum operating pool.
- Recreation facilities: \$25.6 million.** Extension or reconstruction of docks and beaches, and dredging of marina access. Similar recreation facilities are available nearby in McNary and The Dalles pools.
- Umatilla Wildlife Refuge and other habitat: \$18.9 million.** Lowering pool elevation would dry up marshes and wetland created by the John Day inundation. Mitigation options for the Umatilla Wildlife Refuge are: (1) replacing habitat at another site, or (2) holding reservoir elevation at minimum operating pool year-round, and re-vegetating exposed shoreline. The latter option would effectively double the acreage within the Umatilla Wildlife Refuge, and would allow some transfer of flood control to John Day reservoir, thereby taking pressure off of upstream storage reservoirs drafted for flow augmentation.
- Fish passage: \$1.3 million.** Minor modifications to fish ladders at John Day and McNary dams.
- Navigation: \$6 million.** Minor modifications to locks and docks.
- Cultural resources and other: \$1.3 million.**

These cost estimates include engineering, design, and administration overhead by the Corps. It is illustrative of how relatively benign are the impacts of the John Day pool lowering that fully one-third of mitigation costs go to recreational facilities.

Total capital cost to accomplish the lowering of John Day pool is \$76.1 million. Salmon advocates urge an appropriation of half this amount — \$38 million — in fiscal year 1993-94 (FY94) to begin implementation of this crucial measure. Monies can come from the U.S. Treasury or the Bonneville Power Administration Fund. In either case, the Congress must act to appropriate the expenditure.

Although the Corps has advanced a timeline of 4-5 years — 2 years or longer devoted to design and administration — for completion of all mitigation measures, the Congress should order operation of John Day at minimum operating pool by May, 1995. Given the regional crisis around salmon recovery, the Corps can and should cut the time requirements by tightening its

design and administration procedures. In addition, for private and non-federal facilities, the Congress can direct the Corps to reimburse the construction expenses of any and all parties who install their own mitigation measures (e.g. irrigation farmers who extend the intakes of their own pumps). Even if the lowering of John Day occurs in May, 1995, it will still come one year after the deadline set by the Northwest Power Planning Council.

Biological Benefits

The decision to proceed with the lowering of John Day pool is based upon a common-sense deference to the already settled biological conclusions of federal, state, and Tribal salmon experts in the Northwest. Based on the best available field data compiled over more than two decades, based on substantial evidence from pre-dam and post-dam high flow years, these biologists have demonstrated that fish survival increases as hydrosystem velocities increase. More than sufficient data and expert consensus exist now to proceed with operation of John Day reservoir at minimum operating pool.

According to calculations by the Corps of Engineers, the lowering of John Day would cut water particle travel time by .4 to 1.8 days depending upon Lower Columbia River flows (and upon choice of benchmark reservoir elevations). Such an apparently small increase in water velocity has led the Corps and other critics to claim insufficient biological benefit from the salmon recovery measure.

However, in such a large, long, slow reservoir full of predators, salmon survival can dramatically rise when juvenile migration speeds up by even half a day much less nearly two days during low flow periods. Moreover, this benefit flows not only to the threatened and endangered salmon in the Snake River Basin, but to fish runs in the upper reaches and tributaries of the Columbia as well. By producing the equivalent of 4.3 million acre-feet of flow augmentation, the lowering of John Day reservoir also serves to relieve pressure on upstream storage reservoirs (such as Grand Coulee in Washington State, or Libby and Hungry Horse in Montana), and thereby protects resident fish populations there.

Even if one believes (which salmon advocates firmly do not) that fish transportation (barging) provides some biological benefit, Lower Columbia conditions still need improvement for the 50 percent or more of juvenile migrants that elude capture at the collection facilities (traps) at McNary Dam.

Economic Benefits

Hydropower. Regardless of their expressed reservations and alleged uncertainties about the biological effectiveness of increased water velocities, the hydropower agencies and the electric utility industry have agreed to provide substantially larger and expensive flow augmentation in the Columbia, nearly doubling the water budget for fish flush. As these salmon flows force the hydropower system to dump fuel — water — at times of low electricity demand, costs balloon. According to the Northwest Power Planning Council, "the value of lost hydropower production would average \$40 million to \$70 million annually. For the worst-case scenario, in the lowest water years when the region would have to purchase large amounts of electricity from outside the region, the cost could be as high as \$170 million" (*Strategy for Salmon*, Vol. 2, p. 14). Moreover, in drought years, the flow augmentation program raises the risk of failure to refill storage reservoirs such as Grand Coulee.

By comparison, the power "hit" from the lowering of John Day reservoir is so small that the Corps' November, 1992 report offers no estimate of megawatt losses. Loss of water pressure at the John Day powerhouse is offset by greater "drop" at McNary Dam upstream. By permanently replacing any power losses with new generating resources, the Corps estimates in an

absolutely worst-case calculation that the John Day lowering would price out at \$5.05 million annually — a fraction of what flow augmentation costs the hydropower system. So the lowering of John Day reservoir is highly cost-effective as a measure for the region to meet its commitment to fish flows in the Lower Columbia.

Capital Investments. The Corps estimates the capital cost at \$77 million to keep all impacted river users whole. This is comparable to just one year's average cost to produce the same fish flush through flow augmentation. And it is a capital investment — once spent, it pays continuous dividends. By contrast, flow augmentation (or fish barging, if it worked) require perpetual annual expenditures.

A \$77 million capital expense to capture the flow augmentation equivalence of 4.3 million acre-feet yields a unit cost of less than \$18 per acre-foot of water — a "fire sale" price for new storage. The Corps has not identified any new water storage project in the Columbia Basin which carries a unit price of less than \$100 per acre-foot. So as a capital investment, given the region's commitment to flow augmentation in the Columbia River, the lowering of John Day reservoir represents a clear "best buy."

Fisheries. A Pacific Rivers Council study estimates that, even in its currently depressed state, salmon fishing — commercial, sport, and Tribal — pumps \$1 billion annually and maintains 60,000 jobs directly in the Northwest economy. In addition to passing on the legacy of wild salmon runs to future generations, fish recovery in the Columbia Basin can play a vital role in economic health for the region.

Law

The Northwest Power Planning Act requires "flows of sufficient quality and quantity" for salmon migrating through the federal hydropower system. The lowering of John Day reservoir to minimum operating pool represents a "best buy" in producing those flows in the Lower Columbia River.

The Endangered Species Act requires recovery of listed salmon in their natural habitat, i.e. in the river, not in a barge. And in the Lower Columbia, the fish transportation program does not capture and barge more than half the juvenile salmon migrants which arrive at McNary Dam.

Finally, salmon recovery in the Columbia-Snake River Basin is necessary for the United States to meet its treaty obligations to Northwest Tribes.

This briefing paper was prepared by Jim Baker, Northwest Salmon Campaign Coordinator for the Sierra Club. Please direct questions or comments to Jim Baker, Sierra Club, Columbia Basin Field Office, Route 2, Box 303-A, Pullman, WA 99163; phone/FAX: 509-332-5173. Or to Tim Stearns, Save Our WILD Salmon, 6532 Phinney Ave. N, Suite 15, Seattle, WA 98103; phone: 206-784-4585, FAX: 206-784-4577.

FLOW AUGMENTATION REQUIREMENTS

in Lower Columbia River to achieve same water velocity as

JOHN DAY RESERVOIR at Minimum Operating Pool

(Lowest 8 Water Years measured at The Dalles)

	May	June	July	Aug 1-15	Aug 16-31
Flows with Current Augmentation (cfs)	201,610	161,200	125,450	132,900	119,240
Travel Time McNary to Bonneville - John Day at MOP (days)	11.0	13.7	17.6	16.6	18.5
Equivalent Flows - John Day at Normal Pool (cfs)	225,060	179,950	140,040	148,360	133,110
Additional Flow Requirement (cfs)	23,450	18,750	14,590	15,460	13,870
Additional Flow Requirements (acre-feet)	1,441,900	1,115,700	897,100	460,000	440,200

Total Additional Upstream Storage Required: **4,354,900 acre-feet**

Source Northwest Power Planning Council staff

STORAGE behind U.S. DAMS in the UPPER COLUMBIA

Dam Storage (acre-feet)

Grand Coulee	5,190,000
Libby	4,980,000
Hungry Horse	3,160,000

Source: U.S. Army Corps of Engineers

COLUMBIA BASIN SALMON BRIEFING PAPER**LOWERING JOHN DAY POOL****A Crucial Step toward Providing Safe, In-River Migration
for Columbia-Snake Basin Salmon****SUPPLEMENT (*Final Revised*)****July, 1993**

Since the publication in March, 1993 of environmentalists' briefing paper on the lowering of John Day reservoir to minimum operating pool, the Northwest Power Planning Council staff has produced a new calculation of the flow augmentation requirements equivalent to the John Day lowering. The U.S. Army Corps of Engineers has released two versions of a critique of the briefing paper. In addition, the Northwest Irrigation Utilities (NIU) and other sponsors have contracted for a study of biological risks possibly associated with the John Day lowering. This supplement to the earlier briefing paper offers new information, including the new calculation from the Northwest Power Planning Council staff, as well as a response to the Corps and NIU.

Cost-Effectiveness

What efficiency is to electricity generation, reservoir drawdowns are to flow augmentation. The analogy goes a long way to illustrating the advantages, and the opposition, to drawdowns. Like drawdowns, energy efficiency is much cheaper than the alternative in terms of operating expenses; it has little or none. But the front-end capital costs are relatively high.

On the other hand, because the Bonneville Power Administration (BPA) can leverage capital costs by borrowing for 50 years from the U.S. Treasury, these one-time investments for drawdowns have a very small impact on rates indeed. In contrast, flow augmentation — the release of water from upstream storage reservoirs such as Grand Coulee — carries substantial price tags which BPA and the region must pay out in lost revenues and/or up-front operating cash year after year forever.

Even assuming that it in fact cost the full \$1.3 billion to modify all four Lower Snake projects as estimated by the Corps, this capital expense would translate roughly to a modest 5 percent rate increase total — which, if phased in over ten years, would yield just a 1/2 percent rate increase per year. If this represents economic catastrophe, then the Northwest is already doomed because inflation will well exceed 1/2 percent annually throughout the coming decade.

Similarly, BPA says that the agency will spend upwards of \$70 million this year alone buying power in order to protect the additional "water budget" block of 3 million acre-feet (MAF) in the Columbia. A drawdown of John Day would yield at least the equivalent flow augmentation, but would require a single one-time capital investment of \$77 million.

NPPC Calculation: MIP to MOP

Last winter the Northwest Power Planning Council staff calculated the flow augmentation requirement equivalent to a John Day drawdown to minimum operating pool (MOP) — 4.3 million acre-feet. This analysis assumed a reservoir lowering from normal pool to MOP.

Supplement: Lowering John Day Pool — Page 2

Since 1991, the Corps has operated John Day during the juvenile salmon migration season below normal pool at a level known as "minimum irrigation pool" (MIP) below which irrigation pumps cease to function. Taking into account the lower elevations in operating the project at MIP, the Northwest Power Planning Council staff has calculated the flow augmentation requirement to achieve the same water velocity as a John Day drawdown from MIP to MOP. This figure is 3.1 million acre-feet — or roughly the storage behind the Hungry Horse Dam in Montana (see chart).

Drawdowns represent (1) avoided flow augmentation and therefore, (2) "new" storage (for much the same reasons that conservation precludes the need to build new generating stations, and thus provides new power supply). So it is accurate to describe the John Day lowering as the installation of "new" storage equal to the avoided flow augmentation requirements.

The Corps estimates that the one-time capital cost to mitigate all impacts from operation of John Day at MOP is \$77 million. So in assessing the cost-effectiveness of the John Day drawdown as new storage, we divide the capital cost by the acre-footage:

Normal Pool to MOP: \$77 million / 4.3 MAF = \$18 per acre-foot
 MIP to MOP: \$77 million / 3.1 MAF = \$25 per acre-foot

Either of these figures represents a "fire sale." The Corps knows of no new storage project anywhere in the Columbia watershed with this much storage capacity. Moreover, the agency knows of no new storage project of *any* size at such small unit prices.

Corps Response

In May, 1993, the U.S. Army Corps of Engineers released draft comments on environmentalists' briefing paper about the proposed John Day lowering. The agency revised those draft comments in June. According to these papers, the Corps must "realistically concur that it would be unlikely that a significant quantity of additional storage could be economically provided as an alternative to lowering John Day to minimum operating pool."

In the original May paper and in its June revision, the Corps estimated lower figures — 844,000 and 1,529,000 acre-feet respectively — for the flow augmentation equivalent to the John Day lowering. Reviewing the comments, the Northwest Power Planning Council staff does not concur with the methodology used by the Corps in its analyses.

Moreover, the Corps made radically different assumptions in its calculations. The agency counted travel time improvement across the entire salmon migration corridor — not just faster speeds in the John Day pool and the Lower Columbia reach as had the Council staff. With this assumption, the Corps ignores the benefit of overcoming the worst obstacle in the fish migration corridor, of speeding up the longest, fattest, slowest, and thus most lethal of the eight mainstem reservoirs faced by threatened and endangered salmon from the Snake River Basin. Furthermore, the Corps misses the obvious point that John Day pool at MOP amplifies the water speed and the fish benefit of any and all flow augmentation reaching the Lower Columbia.

In any case, the Corps' calculations — flawed as they may be both in concept — illustrate the high cost-effectiveness of the John Day lowering. In the original May, 1993 comments, the Corps arrived at its 844,000 acre-feet figure by sending new acre-feet solely down the Snake drainage, and accelerating all eight mainstem pools in the Lower Snake and Columbia.

But in its November, 1992 report, the Corps identified one leading contender, if any, as a new storage project which would boost fish flush in the Snake Basin — the Galloway Dam on the Weiser River in southwestern Idaho. According to the Corps' own numbers, the Galloway project, if built,

Supplement: Lowering John Day Pool — Page 3

would hold 715,000 acre-feet of active (available) storage, or just 85 percent of the flow augmentation requirement to equal the John Day lowering.

At \$214 million, the Galloway Dam would cost nearly three times the John Day lowering at \$77 million. And the unit prices break out as follows:

Galloway Dam:	\$214 million / 715,000 acre-feet = \$299 per acre-foot
John Day lowering:	\$77 million / 844,000 acre-feet = \$91 per acre-foot

John Day at MOP is the clear winner by a factor of three.

The Northwest Power Planning Council staff had assumed that, as a practical matter, any new flow augmentation would come from the Columbia. The simple fact is that the Columbia — on the U.S. side alone — has twice as much storage as does the arid Snake Basin, and thus the Columbia in any given year offers far more acre-feet available for fish flows. Moreover, new flow augmentation out of the Snake drainage solely, as the Corps had assumed, would not provide benefit to salmon runs in the mid-Columbia stretch, even though the John Day lowering certainly would.

For these reasons, the Corps in its June, 1993 revised comments calculated a higher flow augmentation equivalence of 1,529,000 acre-feet total — of which 1,234,000 acre-feet come down the main Columbia and 295,000 acre-feet from the Snake Basin. By distributing new flow augmentation between the two drainages, the estimate seeks to provide the same improved river speeds to salmon from the mid-Columbia migration corridor as from the Snake Basin as either or both would receive from the John Day lowering. As discussed earlier, spreading faster travel times across the entire migration corridor ignores or glosses over a host of advantages in just speeding up the John Day pool.

Regardless, in assessing the cost-effectiveness of the John Day drawdown as new storage, we once more divide the capital cost by this estimates of equivalent acre-footage:

Corps calculation: $\$77 \text{ million} / 1,529,000 \text{ acre-feet} = \50 per acre-foot

These figures show high cost-effectiveness indeed. While the Galloway Dam (at triple the price) would fill the Snake Basin requirement, the Corps knows of no new storage project anywhere in the Columbia watershed with a storage capacity of 1,234,000 acre-feet to supply the need on the Columbia side. Moreover, the agency knows of no new storage project of *any* size at such small unit prices.

Again, all of these calculations of cost-effectiveness are performed with the Corps' own numbers — warts and all. Nonetheless, the lowering of John Day still comes up a clear "best buy" at some "fire sale" prices.

The remainder of the Corps' comments raises questions and doubts about the biological benefits and about ecological impacts from the John Day lowering. The NIU study treats the same issues in greater detail.

NIU Study

In an April, 1993 study entitled "Biological Risks Associated with a John Day Reservoir Drawdown," biologists under contract to Northwest Irrigation Utilities (NIU) and other sponsors charge that the John Day lowering would cause a range of ecological impacts — primarily losses of salmon, resident fish, and wildlife due to drying out and other damage to aquatic and riparian habitats mainly located at the head of the John Day pool.

The NIU study assumes a lowering of John Day pool for 4 months, May 1 to August 31. However, if the reservoir level were dropped to MOP year round, the exposed lake banks would re-vegetate, and thus the aquatic and riparian habitat zones would re-establish themselves at the lower elevations. Operation of John Day pool at MOP for 365 days annually has the added advantage of allowing a transfer of flood control storage from upstream storage reservoirs, and thereby maintaining higher pool levels in Grand Coulee, Libby, and Hungry Horse — a major benefit for resident fish and recreation at those sites.

In a letter dated June 14, 1993, Marvin Plenert, Northwest Regional Director of the U.S. Fish and Wildlife Service, states that his agency "continues to support the concept of pool-lowering at the John Day Dam to aid in reducing the travel time of outmigrating juvenile salmonids," and that, for resulting impacts to the Umatilla National Wildlife Refuge, "an appropriate mitigation plan can be developed."

The NIU study further warns of reduced fish passage, particularly by adults over the ladders at John Day and McNary dams. But the Corps' estimate of \$77 million capital cost for mitigations includes the minor fish ladder modifications necessary for safe adult passage.

In the executive summary, the biologists under contract to NIU state that "dissolved [nitrogen] gas supersaturation of longer duration and higher levels is likely to occur at both John Day and McNary dams resulting in higher losses of both resident and salmonid fishes." But neither the body of the study nor any other report gives any reason whatsoever to believe that spill at either dam and thus nitrogen supersaturation would increase due to operation of John Day pool at MOP. The NIU study lamely cites Corps projections of spill at Lower Snake projects for which proposals call for drawdowns well below MOP.

Finally, after picking inaccurate and misleading numbers for increased water velocity by lowering John Day pool, the NIU study concludes, "Computational model results predict that drawdown to minimum operating elevation could increase the return of wild adult salmon to Idaho by an additional 50 fish (primarily spring and summer chinook). . . . Almost no benefit can be expected for Snake River sockeye and fall chinook." The computational model alluded to in the text has been discredited and rejected in peer review.

Conclusion

On every scale — biological benefit, cost-effectiveness, and/or avoidance of economic impacts, the lowering of John Day reservoir to minimum operating pool just makes good sense as a measure to save threatened and endangered wild salmon in the Snake River Basin as well as the mid-Columbia. It's a "best buy." Congress should appropriate funds in Fiscal Year 1993-94, and direct the Corps to begin work immediately.

This supplemental briefing paper was prepared by Jim Baker, Northwest Salmon Campaign Coordinator for the Sierra Club. Please direct questions or comments to Jim Baker, Sierra Club, Columbia Basin Field Office, Route 2, Box 303-A, Pullman, WA 99163; phone/FAX: 509-332-5173. Or to Tim Stearns, Save Our WILD Salmon, 6532 Phinney Ave. N, Suite 15, Seattle, WA 98103; phone: 206-784-4585, FAX: 206-784-4577.

FLOW AUGMENTATION REQUIREMENTS

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JOHN DAY RESERVOIR at Minimum Operating Pool (MOP)

(Lowest 8 Water Years measured at The Dalles)

	May	June	July	Aug 1-15	Aug 16-31
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Additional Flow Requirement (cfs)	23,450	18,750	14,590	15,460	13,870
Additional Flow Requirements (acre-feet)	1,441,900	1,115,700	897,100	460,000	440,200
John Day Normal Pool to MOP — Total Additional Upstream Storage Required: 4,354,900 acre-feet					
Equivalent Flows - John Day at Minimum Irrigation Pool (cfs)	217,020	173,520	137,240	145,390	130,440
Additional Flow Requirement (cfs)	15,410	12,320	11,790	12,490	11,200
Additional Flow Requirements (acre-feet)	947,500	733,100	724,900	371,600	355,400
John Day MIP to MOP — Total Additional Upstream Storage Required: 3,132,500 acre-feet					

Source: Northwest Power Planning Council staff

CALCULATIONS of FLOW AUGMENTATION EQUIVALENT to JOHN DAY at MOP

Method	Storage (acre-feet)	Unit Price (\$/acre-foot)
John Day Normal Pool to MOP Flow Augmentation required in Lower Columbia only (Source: NPPC)	4,354,900	\$18
John Day MIP to MOP Flow Augmentation required in Lower Columbia only (Source: NPPC)	3,132,500	25
John Day MIP to MOP Flow Augmentation required in Middle Columbia, in Lower Snake, and in Lower Columbia (Source: Corps)	1,529,000	50
John Day MIP to MOP Flow Augmentation required in Lower Snake and in Lower Columbia (Source: Corps)	844,000	91

Corps - U.S. Army Corps of Engineers

NPPC - Northwest Power Planning Council staff

STORAGE behind U.S. DAMS in the UPPER COLUMBIA

Dam (State)	Storage (acre-feet)
Grand Coulee (WA)	5,190,000
Libby (MT)	4,980,000
Hungry Horse (MT)	3,160,000

Source: U.S. Army Corps of Engineers

COLUMBIA BASIN SALMON BRIEFING PAPER

MODIFYING LOWER GRANITE DAM

The First Step Toward Providing Safe, In-River Migration
For Endangered Snake River Salmon

S Snake River salmon face the ultimate crisis: extinction. Hydroelectric development has rendered their migratory rivers--their Snake and Columbia River corridors to the ocean and back--lethal. Despite listing under the Endangered Species Act in 1991, their migration conditions remain lethal.

In 1992, the Northwest Power Planning Council adopted its salmon-saving program. To tackle the pivotal migration problem, the Council called for annual spring drawdowns of four federal lower Snake River reservoirs. These drawdowns will provide Snake River migratory conditions much closer to those the salmon evolved within. (The National Marine Fisheries Service's Snake River Salmon Recovery Team is also expected to propose some form of drawdowns in its soon-to-be-released recovery plan.)

But the Council plan is in a desperate race with time. It must be implemented before the salmon go extinct, yet before it can be fully implemented the four dams must be modified to allow both salmon passage and present uses to co-exist. The Northwest, with help from Congress and the Administration, must take the first step now: modifying Lower Granite Dam, the first dam reached by migrating juvenile Snake River salmon.

Northwest fishermen, conservationists, and salmon advocates therefore urge a \$30-50 million Congressional appropriation in 1993 to begin modifications that will allow Lower Granite to operate near spillway crest each spring, starting in 1995, as called for in the Council plan. We must act now or we--salmon and people--will lose the race.

Background: Why Lower Snake Drawdowns At All?

In passing the Northwest Power Act of 1980, Congress declared the condition of Snake River salmon an "emergency." The Act directed that "flows of sufficient quality and quantity" be provided for salmon through the federal hydrosystem on the Snake and Columbia Rivers, and that fish be given "equitable treatment" with other system uses.

But neither sufficient flows nor equitable treatment exist. In the 1980s, Snake River coho salmon went extinct, and in 1991 all remaining Snake salmon were listed under the Endangered Species Act. Today, all Snake River sockeye are being removed from their natural habitat and placed in captive breeding because their migratory habitat is so lethal.

Northwest fishery agencies and tribes attribute over 90 percent of human-caused mortality upon these fish to the federal hydrosystem. To restore fishable populations, agencies and tribes say the salmon need 140,000 cubic feet per second of flow through the lower Snake River, April 16 to June 15, in all water years.

In low water years like those since 1985, it would require more stored water than exists in the entire Snake Basin to create those flows. But spring reservoir drawdowns, recreating something like a river for 2 months, can provide them. The Army Corps of Engineers found that these fishery flow recommendations for the lower Snake can be met 98 percent of the time by reservoir drawdowns to near spillway crest at the four federal dams.

Based upon this law and logic, the Northwest Power Planning Council adopted this regional goal in 1992: "The reservoir drafting strategy...will be fully developed, demonstrated, tested, and evaluated for quick implementation, unless it is shown structurally or economically infeasible [or] biologically imprudent..." Implementation was called for by 1995.

In March 1992 the Army Corps performed a drawdown test that proved drawdowns are structurally feasible. A National Marine Fisheries Service economics committee released an analysis in 1992 which showed drawdowns to be economically feasible--the least-cost way to attain needed flows. Fishery agencies reiterated their judgment that temporarily moving back towards pre-dam conditions during spring migration is biologically prudent.

The only real alternative to lower Snake drawdowns is to continue current collection and transportation - barging - of juvenile salmon through the projects. In December 1992, the fishery agencies and tribes concluded the evidence indicates barging is detrimental to wild salmon recovery. Salmon barging has had 16 years to prove itself; instead the result has been continued decline of the barged stocks toward extinction.

The Northwest must put the fish back in the river, and begin implementing the in-river elements of the Council program. Dam modification to allow drawdown operation must begin now.

An Early Action Initiative at Lower Granite Dam

As a first step, Northwest salmon advocates propose capital investments, totalling \$70-95 million over two years, to draw Lower Granite Reservoir down near spillway crest each spring. This investment will: speed juvenile fish through the reservoir, and spill or pass them by the dam; allow adult fish ladders to continue operating; and prevent or mitigate damage to other uses.

The money can come from the U.S. Treasury or the Bonneville Power Administration Fund. In either case Congress must act to appropriate it.

These investments modify the upstream side of Lower Granite Dam; there is substantial agreement on the technical work needed. Modifying the dam to operate near spillway crest (some 45 feet below normal) includes these elements:

A. Mine a new low-level juvenile collection channel so downstream migrating salmon can bypass turbines during drawdown. The Army Corps estimates a \$15 million cost. (For another \$14 million, the pressurized pipes which now bypass fish for barging could be replaced by a more "fish friendly" open channel flume.)

B. Install new pumps for, and add a secondary low-level exit to, the adult fish ladder. Estimate: \$3 million.

C. Improve project structures. Reservoir embankments would be armored to prevent slumping, for \$29 million. Changes to the navigation lock and trash boom total \$1 million.

D. Mitigation to affected reservoir users, so they can continue operating during drawdown (irrigators and other water pumpers) or be kept whole for the 2-month interruption of their activity (port customers). A combination Army Corps/NMFS cost estimate is \$8.5-9.5 million. There are opportunities for mitigating these impacts entirely through capital investments rather than annual payments.

E. Improved spillway guidance for juvenile salmon in drawdowns. Measures could include a sluiceway along the powerhouse forebay (to move smolts to the spillway), an angled curtain along the trash boom, and sound and/or light guidance mechanisms. Estimates for these improvements haven't been made.

F. Overhead. The Corps' estimate is 28% (engineering and design) and 11% (management) of total costs.

Total cost for this package is \$70-95 million, depending on inclusion of the flume, item E, and actual overhead. It could be appropriated over two years. The package tracks closely with one alternative the Army Corps is analysing in its drawdown studies. Corps staff suggested Lower Granite modification as a logical starting point for that alternative. With Congressional action, the modification could be complete in two to three years.

Biological Benefits. Modifying Lower Granite Dam will provide further evidence on the correlation between water velocity and salmon survival. And it will help answer other key biological questions. How can juvenile and adult salmon be safely passed through dams during drawdown? How well can fish be guided to the spillway, and how many are spilled at various levels of spill? In drawdown, how will collection and bypass facilities operate, and what adult ladder attraction flows are necessary?

But a decision to modify Lower Granite now must also be based upon a commonsense deference to the already-settled conclusion of Northwest federal, state, and tribal salmon experts. Based on substantial evidence from pre-dam and post-dam high flow years, they have concluded that survival increases as hydrosystem velocities increase.

Sufficient evidence and expert consensus exists now to take this first step. That step in turn will provide further evidence for deciding what the next steps are and whether to take them.

Economics. The best present cost estimates of this proposal are attached in tabular form. Capital cost estimates are the Army Corps'; impact estimates are the National Marine Fisheries Service's Economics Technical Committee's.

Capital Investments. The Corps estimates capital cost at \$70-90 million, including dam modifications themselves plus pump modification for irrigators and industries. This is far less than one year's cost of purchasing water to achieve the same velocity. And it is a capital investment--once spent, it pays continuous dividends. By contrast, fish barging and water purchases require perpetual annual expenditures.

Power Impacts. NMFS estimated the firm energy impact of a 2-month Lower Granite drawdown to be between a 40 megawatt (MW) gain and a 40 MW loss. The midpoint is no impact. Midpoint impact estimates to non-firm energy and capacity total \$8.7 million annually. Actual impacts would lessen with time, as the regional energy system adjusts to these predictable slight losses.

Navigation Impacts. NMFS estimated a 2-month Lower Granite drawdown would cause annual losses to ports and port users of \$2.45--\$3.25 million. Mitigation likely requires a combination of capital expenditures and annual payments, again declining over time as market adjustments occur. These losses are well below the annual public subsidies that ports and users now receive--lock operation and maintenance, navigation channel dredging, etc.

Irrigation Impacts. Once irrigation, industrial, and municipal water pumps are extended, for about \$6 million, the only impact would be a slight increase in pumping costs. The region could mitigate that increase for a negligible annual cost.

Fishery Impacts. A Pacific Rivers Council study estimates that, even in its currently depressed state, salmon fishing pumps \$1 billion yearly into the Northwest economy, and maintains 60,000 jobs. Restoring Snake River salmon will increase that economic benefit by restoring Idaho's salmon fishery. And it will maintain or increase downstream benefits by easing current constraints on harvest of other salmon stocks to protect the weak Snake stocks.

Law. The Northwest Power Act requires "flows of sufficient quality and quantity" for salmon migrating through the federal hydrosystem. In the lower Snake, drawdowns are the only way to provide those flows. The Endangered Species Act requires recovery of listed salmon in their natural habitat. For their lower Snake habitat, drawdowns are the only way (aside from dam removal) to restore its usability. Finally, drawdowns will also help the United States meet its treaty obligations to Northwest tribes.

INITIAL MODIFICATION OF LOWER GRANITE DAM

CAPITAL COSTS

Dam Modifications	Cost (in millions)
Juvenile Collection Channel (Separator & holding facilities)	\$15-29 (\$14)
Adult Ladder	\$ 3
Reservoir Embankment Armoring	\$29
Miscellaneous Structural Modifications	\$ 1
Engineering and Design @28%	\$13-17
Construction management @11%	\$ 5-6
Subtotal	\$66-85
Pump Modifications (Excluding Potlatch & Lewiston Country Club)	\$ 5.5
Total	\$72-91 million

(Source: Army Corps of Engineers, 1992)

ANNUAL IMPACTS/COSTS

Power Impacts	Range		
Firm Energy (MWa)	40 gain	40 loss	
Nonfirm (MW-Month)	300 loss	1000 loss	
Capacity (MW)	250 loss	750 loss	
Value of Power Losses (in millions)	Low	High	Midpoint
Firm Energy (Replacement Cost)	-14.0	14.0	0.0
Nonfirm	2.2	7.3	4.7
Capacity	2.0	6.0	4.0
Navigation Impacts (in millions)	Range		
	2.45	3.25	

(Source: Huppert, 1992 - NMFS Economics Technical Committee)

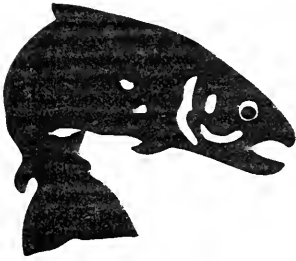
This briefing paper was prepared by Pat Ford, for members of the Save Our Wild Salmon Coalition. Direct questions and comments to Ford at 1511 N. 11th St., Boise ID 83702, 208-345-9067, or to Tim Stearns, SOS, 6532 Phinney Avenue North, #15, Seattle WA 98103, 206-784-4585.

The Effect of

PNW 406

LOWER SNAKE RIVER RESERVOIR DRAWDOWN ON BARGE TRANSPORTATION:

SOME OBSERVATIONS



by

Joel R. Hamilton
Idaho

Michael Martin
Oregon

Ken Casavant
Washington



For the
University Task Force on Salmon and the Columbia River System

THE UNIVERSITY TASK FORCE ON SALMON AND THE COLUMBIA RIVER SYSTEM

The Task Force is a group of faculty from the University of Idaho, Oregon State University, Washington State University, and the University of Washington with interest and expertise relating to the Columbia River system. They were appointed by the Agricultural Experiment Stations and Extension Service directors of Idaho, Oregon, and Washington and given the following charges:

- Identify research and educational issues that the universities can address within the framework of their missions, capabilities, and resource bases;
- Identify resources and create working networks in each state to address identified issues relating to the Columbia River system salmon and steelhead runs;
- Develop a working plan to organize research and public education programs:
 - Document the current knowledge base;
 - Prepare educational materials;
 - Plan and conduct workshops with interested agencies, organizations, and interest groups; and
 - Conduct research and education programs.

The Land Grant and Sea Grant universities of Idaho, Oregon, and Washington are repositories for a substantial amount of information relating to the resources of the Columbia River system. They also are home for many highly trained scientists with relevant expertise. These scientists and the knowledge available to them could have considerable bearing on improving solutions to the problems arising from reduced populations of native salmon. Although the issues will, in the end, be decided by the public through a variety of political processes, the quality of these decisions will depend on the quality of information on which the decisions are based.

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The Effect of Lower Snake Reservoir Drawdown on Barge Transportation: Some Observations

by

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Michael Martin, Oregon State University
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Among the key problems faced by Columbia and Snake River salmon stocks are the difficulties juveniles face in migrating to the ocean through slackwater pools behind the series of dams on the lower river. Because the fish depend at least in part on water flow for direction, they may become disoriented and spend too long in the slackwater pools. This exposes them to predation and throws off the critical timing of their biological adjustment to saltwater.

Two possible ways to address this problem are to augment river flow or drop reservoir levels during the critical migration period. Either approach aims to boost the velocity of water moving down the river. Augmentation would do it by identifying an increased "budget" of water to sluice through the slackwater pools. Drawdown would do it by dropping the river profile, reducing the cross sectional area of the pools so that a given water flow produces more velocity.

Biological data on the relationship of velocity to juvenile salmon survival is limited, but it suggests that survival is better in years when flows approached 140 kcfs at the Lower Granite Dam. While this a reasonable target flow from a biological perspective, this target is rarely met, and it would be physically, economically and politically very difficult to obtain the water needed to augment flows to this level in dry years. For this reason, most proposals that rely on flow augmentation with a water budget use a more modest but biologically less satisfactory 85 kcfs target flow. Unfortunately, current proposals for flow augmentation, such as those contained in the "Draft Flow EIS" by the US Army Corps of Engineers (reference 4), have not shown where enough water could be found to meet even the 85 kcfs flow target in all years.

With the reservoirs drawn down below minimum operating pool level, river velocities equivalent to full pool velocities at 85 kcfs or even 140 kcfs can be attained within the present water budget (see the Corps Draft EIS, reference 4). However such a drawdown would affect barge transportation on the Lower Snake. In recent years, the river has become a major avenue for shipping agricultural and forest products downstream, and shipping fertilizer, fuel and manufactured goods upstream. (See reference 3, the "Henry report" to the Idaho Governor's Office, which describes the scope and nature of the existing barge transportation system.)

This paper discusses impacts which drawdown would have on barge movement of commodities, especially agricultural commodities, and subsequent impacts on river system users as well as the region's economy.

1. Duration of Drawdown

While both longer and shorter drawdown periods are possibilities, the principal scenario being discussed would drop pools behind one or more of the four lower Snake River dams (Lower Granite, Little Goose, Lower Monumental and Ice Harbor) to below minimum operating pool level for 8 to 12 weeks, April to June. Pools might drop as low as the spillway crest for some portion of that time. Any pool drop below minimum operating level, interrupts barge movement. The lower Snake ports presently shut down for 2 weeks each year for lock repair and maintenance. In the future, this could be done during the drawdown, so the drawdown would extend the present shutdown period by 6 to 10 weeks. Shippers would have to alter their marketing and logistical patterns in response to this longer shutdown.

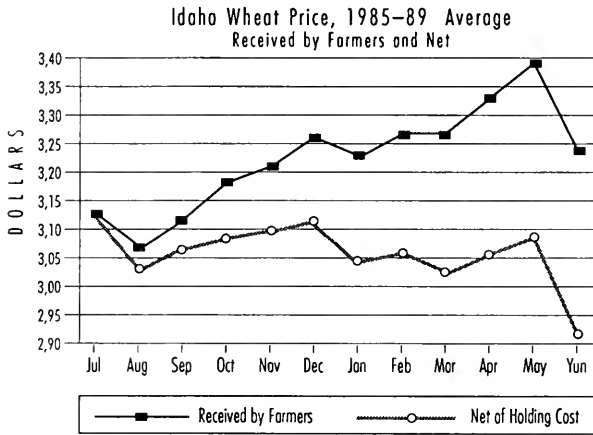
2. Effect of Drawdown on Grain Shipments

Some previous discussions of the drawdown effects on barge traffic have assumed that shipments of grain would continue during the shutdown period. Shippers would face some increases in transportation and handling costs caused by the disruption, most significantly the incremental cost of continuing to ship the usual quantity of grain during the shutdown, via the next higher cost alternative mode. The Corps of Engineers estimates that shipping a bushel of wheat to Portland from ports on the Lower Granite pool costs only 17¢ by barge, but as much as 31¢ by rail and 86¢ by truck (reference 4, page 4-104). Some estimates of drawdown damage on shipping wheat via alternative modes from river ports to Portland have been distressingly large. However, the actual damage may be a lot lower because shippers' adjustments to drawdown may be more creative than just shipping via an alternative mode.

The grain price in terminal markets is determined by global supply and demand conditions. However, farmers are price takers in the market; the price they receive equals the price at the terminal market less the cost of marketing grain to that terminal. In the absence of changes in international grain prices, changes in handling costs, transportation, storage, risk, and financing all affect the net price that farmers receive for their grain.

Information on monthly prices received by Idaho farmers over the last 6 years is shown in Figure 1. These prices are net of the costs of transportation and

Figure 1.



handling necessary to get the grain to terminal markets. However the costs of storage, risk, and financing that the farmer ordinarily pays have not been deducted. Farmer prices are generally lowest during the July to September harvest glut, gradually rise through the marketing year, and plunge again at the next harvest. The farmer or grain company is faced with a complex balancing act. They trade off the need to pay near-term bills against the cost of continued storage with the possibility of hitting a higher price. This is subject to the constraint of trying to empty storage in preparation for the coming harvest. The interest forgone by holding grain is between 1¢ and 2¢ per bushel per month. In addition, the marginal cost of storing the grain might be 1¢ or 2¢ per bushel per month (2¢ to 3¢ for commercial elevators, less for on-farm storage). Those who think prices will rise enough to cover these holding costs will continue to store grain; those who don't will sell. When the cumulative interest, storage and risk costs of holding grain in storage, say 3¢ per bushel per month, are deducted from farmer prices, the net price is nearly level as shown by the lower line in Figure 1. On average, there are no particular time periods when farmers can expect unusual net returns; one month appears about as good as another. Therefore, the high farm prices which regularly occur in April and May, do not imply disproportionately high net prices. Table D28 of the Henry Report shows that shipments from lower Snake River ports actually slow during that period, suggesting that shippers see no advantage in waiting until April or May to sell.

How would river drawdown affect the pattern of grain movement? Farmers near the river and more distant farmers may react differently. Nearby farmers have grown to depend almost exclusively on the truck-barge mode for marketing their grain because it costs them significantly less than the alternatives such as rail or truck. If the river is shut down for a period at the end of their market year, these shippers will probably try to move their grain by barge before the shutdown. They are not likely to shift to a higher-cost alternative mode because that would sharply reduce their net returns. They are not likely to hold their grain through the shutdown because they need to move it before the new crop comes on the market and depresses the price. From the perspective of these farmers, there might be very little long run effect from the shutdown. Farmers and marketing firms might simply adjust to marketing on a 10-month basis. From this perspective, alternative and expensive railroad and truck transportation might be unnecessary if farmers near the river adjust rather than use more expensive transportation.

Farmers located more distant from the river have more choices. For many of them, choice between truck-barge and train may be a matter of a few cents per bushel. Those who presently use the river would face the choice of either moving the grain earlier by barge or paying the marginally higher cost of moving it by rail. For these swing areas, the cost of drawdown may range from almost nil to 5¢ cents per bushel -- neither trivial nor really disastrous. Unlike watersheds which remain fixed by topography, "grainsheds" which divide modes and routes shift constantly in response to changes in shipping costs and market conditions.

If some grain moves by an alternative mode during the 2-month drawdown, it follows that some marketing and transport firms would have less volume over which to spread their fixed cost. Thus the unit cost of shipping from the lower Snake River ports would be increased for the entire year. However, even if all of this grain were shipped during other months, with the total shipment volume remaining unchanged, some small rise in unit costs might still occur because the volume moves in 10 months rather than 12.

There may be no particular reason why the flow of grain from the lower Snake River ports has to continue during these 2 months to satisfy grain demand out of Portland. From 1987-89, only 21% of Portland grain shipments originated at the lower Snake River ports (see Henry report, tables D7 and D15). The rest came from other river ports and via rail and truck. In fact, April-June shipments from these origins is only 5.4% of total annual shipments from Portland. Drawdown would probably result in an adjustment in the timing of grain shipments from the various origins. Exports during the drawdown might be met by shipments from sources other than the lower Snake River, while shipments from these alternative sources would be cut back at other times to allow the market to absorb the increased 10-month shipments from the lower Snake River. Surveys by the authors show that many firms have elevators at

points off the river as well as at the river ports. These managers suggested that, at least for a 2-month period, they could adjust shipment patterns within their firms. If this happens, it is not necessary to worry about prepositioning or destination storage constraints. What effect regional differences in variety and quality would have on this market driven adjustment process is unclear and requires further detailed study.

Only if this likely market driven adjustment fails to occur would terminal elevators be unable to service all export sales during the drawdown period. If they could not efficiently acquire grain from sources other than via lower Snake River barges, or if they lack storage to buffer their flow of grain during this period, they would be unable to expeditiously load vessels bound for export. Bottlenecks at railcar unloading facilities, or problems with the deepwater ship channel below Portland in the postdrawdown period, might cause some vessel operators to call at other ports or some international purchasers to seek supplies elsewhere.

Seasonal interruptions to barge traffic are not unique to this particular proposal. The Great Lakes Region and upper Mississippi River freeze every winter. Producers whose products are hauled by barge during the rest of the year must either lay out of the market or make alternative plans for product transportation during the winter. A study to evaluate barge traffic in such areas to see what might be learned for the situation here in the Pacific Northwest might be useful.

3. Distribution of Effects

A river drawdown would have effects on a wide range of individuals, groups, organizations, and public entities.

a. Farmers

As noted above, a large part of the transportation-related costs of drawdown would probably be mitigated by market induced adjustments, so the effects on farmers may not be large. However, to the extent that such mitigation is incomplete, most of the remaining costs will probably be passed on to farmers. Such costs would vary by geographic region. Farmers closest to the lower Snake River corridor, those who benefitted most when barge transportation came into the region 15 years ago, now stand to lose some of those benefits. This loss would be especially painful because it occurs after those benefits have been capitalized into land value.

More distant farmers would be damaged less but the degree of impact depends on the competition between rail and truck-barge modes. Many producers whose grain does not now move on the river have benefitted from lower transportation rates in the Pacific Northwest because the competitive availability of barges has caused lower rail rates in much of the Pacific Northwest.

b. Grain terminals and related companies

Undoubtedly there will be costs to the barge-related river terminal facilities, whether or not mode switching occurs. If significant mode switching occurs, some elevators and terminals might need to construct new facilities, especially those which no longer have direct access to railroads. Others would need to expand facilities for handling increased rail or truck traffic. Firms facing expansion possibilities in general would have the economic incentive to do so. Those firms left with underutilized capacity because of the drawdown could suffer short to intermediate term losses. If the drawdown were to extend much beyond a 2 to 3-month period, some river terminal facilities would probably go out of business.

Many elevators, both on the river and in the hinterland, will store grain for a shorter time and thus lose storage revenue. These organizations have considerable market power. One expects that they will be able to pass most of any long run cost increases or profit losses on to someone else, primarily to farmers. Many firms handling grain are cooperatives owned by producers, assuring that farmers will feel the effects.

c. Barge transportation companies

Since these organizations have considerable market power (one firm controls around 80% of grain barge capacity in the area), they can probably shift a considerable part of any long run change in costs to inland shippers and farmers. In the short run, they may find it more difficult to pass on these costs (although a 30¢ per ton increase -- about 6% -- occurred in mid 1991 in anticipation of drawdown disruption). Effective competition between barge and rail is critical to keep rates reasonable and promote efficient movement of Pacific Northwest commodities. Disturbing this competition could be one of the most important consequences of the drawdown.

d. Port districts

Port districts also might end up bearing some of the costs of drawdown. Since these are units of local government, their welfare should be a special

concern to local areas. Failure to achieve expected future shipping volume, and the associated failure to meet projected levels of commercial port development, would affect future bond repayment and district tax rates. The inland ports would be especially vulnerable to volume changes caused by the drawdown, while the ocean ports would probably see little or no volume and revenue change.

e. Trucking and railroads

If mode switching does occur, railroads will profit from the increased volume. Shortage of hopper cars might be a constraint, although the railroads continue to suggest that serious shortages are unlikely. Unloading bottlenecks at terminal facilities are also a potential problem.

A number of rail lines in the region are under threat of abandonment. Increased rail traffic from mode switching could have the beneficial effect of preserving some lines from abandonment, thus preserving some effective intermodal rate competition.

f. Highways

Increased truck traffic near multiple car loading facilities in the hinterland away from the river could have an adverse effect on local highway condition and traffic safety, but overall highway ton-mileage might decrease because of the decline in truck traffic carrying grain to the river. This would decrease deterioration of the roads to the river but increase the traffic and damage on local roads which are not built for the magnitude or density of such traffic. Research by Casavant (reference 1) indicates that maintenance costs on affected eastern Washington road segments would change by 5¢ to 7.5¢ for each ton-mile net change in grain movement by truck.

The fact that some roads are subject to weight restrictions during the spring is an additional complication that may influence some shippers marketing decisions. Instead of a 10-month marketing year, some shippers located on poor highways may have only an 8-month period when they can get access to barge transportation.

g. Lumber, chips, & paper products

The river is used for shipping logs, lumber and wood chips. Although these shipments would be disrupted by a drawdown, shippers of these relatively nonperishable items may face fewer storage constraints, and hence greater latitude for prepositioning products than is true for grain shippers. That is, these

items can be shipped before drawdown and stored to meet use or market demands during the period when shipping is shut down.

The mill complex at Lewiston ships significant amounts of paper products downriver in containers. A drawdown would cause problems by disrupting the just-in-time management of these shipments. Moving these containers by rail or truck would probably be a viable, although more expensive, alternative.

To the extent that drawdown makes it more difficult or expensive to move wood chips out of the region, this could possibly give a slight advantage in the chip market to the Lewiston mill as it competes with other mills served by river transportation.

h. Containers, fertilizer, petroleum, and other products

A number of other products that move both upstream and downstream on the river might be disrupted by drawdown, although the quantities are small compared to movements of grain and wood products. The advent of just-in-time inventory management and high seasonality in movement will magnify the disruptions. In many instances, much of this disruption can probably be accommodated by storage and prepositioning, although it is acknowledged that such storage does not presently exist.

The drawdown period would overlap the period for spring planting and fertilizer application. Some liquid fertilizer is stored on-barge before distribution, so drawdown might require significant increases in on-shore liquid fertilizer storage.

Some concern exists about whether such potentially toxic materials should be allowed on a river which contains endangered species. Transporting such items may be increasingly regulated irrespective of whether river drawdown occurs. Any such reduction in up-river (backhaul) traffic would result in increased unit costs for the remaining shipping.

i. Impact on port-related regional development

The lower Snake River ports have attracted some industrial developments which made site decisions at least partly an access to barge transportation. A 2-month shutdown could make it more difficult to attract additional development of this kind. Any substantially longer drawdown might cause relocation and loss of many of these enterprises.

Because much of the region's grain already moves by barge, little further development of grain facilities is expected, even with no drawdown.

j. Secondary Effects

Each of the primary effects outlined above will result in further secondary effects (i.e. multiplier effects) on the various sectors of the economy that provide inputs to the directly affected sectors or that benefit from income generated in these sectors. While such secondary effects will undoubtedly occur, it is notoriously difficult to estimate them with precision (see Hamilton, et al., reference 2).

4. Mitigation Strategies

Many parties working to develop recovery plans for salmon have stated their commitment to mitigate the adverse effects on various parties. Economists have long debated both the necessity of and appropriate methods for compensating losers in any economic reorganization.

The conceptual difficulties in predicting the effects, as outlined above, will make it difficult to target mitigation efforts. Mitigation can distort the economy and is often an inefficient way to deal with problems. It is important to be especially sure that mitigation to address short-term manifestations of a problem does not inhibit long-run adjustment. If we could be sure that the effects would be neither disastrous nor irreversible, it might make economic, if not political, sense to do the drawdown, and see what happens, before trying to design mitigation. Litigation, where parties recover damages after the fact through the courts, could be a form of mitigation although the litigation cost itself might be high.

A continuing concern is the high degree of subsidization, historic and current, in the existing river, road and rail system. (Of course the same can be said of most of the other uses of the river including irrigation, recreation and hydropower.) If mitigation adds to these subsidies, it may reduce economic efficiency. Once continuing subsidies get capitalized into property values, it becomes very difficult to terminate them. A study providing such information should allow a better policy decision framework regarding subsidization and mitigation.

There appears to be political sentiment that mitigation ought to be in the form of capital investments in facilities rather than operating subsidies. However, there is no economic reason to favor one of these over the other. Some mitigation possibilities being discussed at this time include the following:

a. Storage

Although there are proposals to subsidize construction of grain storage at the Port of Portland to allow prepositioning of grain from the lower Snake River, there are also serious concerns whether building storage for such a limited purpose would be economically rational or efficient. It is also unclear what effect such subsidized storage would have on the market for storage services during the non-drawdown months. There is ample storage in the country elevators presently, but the geographical distribution is unbalanced. Careful study of the magnitude, location and need for any proposed storage facility is critical. Broad interest in a barge facility on the Columbia River below the confluence with the Snake River is evident.

b. Railroad cars

Because the lack of railcars is often cited as an obstacle to shifting grain shipments to that mode, some have advocated subsidized purchase of cars as a mitigation measure. If shippers choose to lay out of the market during the drawdown, subsidized purchase of cars would not make sense. Further, if congestion at the terminal ports causes an embargo by the railroads, such as occurred in October, 1991, then extra car capacity is redundant. In any case, buying railroad cars to serve only a seasonal need would be an expensive proposition.

c. Car loading facility

The inland producing areas served by the Snake River already have multiple car loading facilities, some as close as 35 miles to the river. Some of the elevators on the river have expressed interest in relocating to inland locations or to the Tri Cities if the drawdown period exceeds 2 months. Such a facility in the river hinterland would add capacity, competition and marketing flexibility. The recent terminal port embargo of rail shipments suggests that unloading facilities may be as much of a problem as loading facilities.

d. Information

A recurrent theme in discussions with marketing firms is a "need to know." Managers seek to reduce uncertainty as much as possible and that requires information. Concerning river drawdown, they have stated, "We'll make the best business decisions we can, but tell us the rules." Economists speak of informed economic decisions as reducing market distortions. An investment in detailed communication and information exchange between action agencies,

such as the US Army Corps of Engineers and the potentially affected parties, well in advance of any river drawdown could therefore be a very effective mitigation measure.

5. Conclusions

We conclude that shippers who presently depend on the lower Snake River ports are likely to be very creative in modifying the timing and mode of their shipments in response to any drawdown of the river. They have a strong economic incentive to do so. These market-driven adjustments are likely to mitigate some of the impact of a river drawdown. Those estimates which predict devastating impacts on the region's shippers could be seen as negotiation postures.

There will, however, be some impacts. Some individuals and some firms will suffer costs if a drawdown is implemented. Other individuals will be in a position to gain. These gains and losses will be extremely important to those affected. More study is needed to help us understand the gains and losses and their distribution. We need this information if we are to have any hope of efficiently targeting mitigation efforts.

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STATEMENT OF AL WRIGHT

Mr. WRIGHT. Chairman DeFazio and Congressman LaRocco, my name is Al Wright, I am the executive director of the Pacific Northwest Utilities Conference Committee, which is an association of public and private utilities as well as direct service industries which purchase energy directly from Bonneville.

Mr. Chairman, I will take you up on your offer in the beginning, and rather than read from my testimony, I would like to touch on some things that have been said already.

Quickly, I would like to just touch on a couple of points that are in the testimony. One, is the Power Planning Council's strategy adequate and appropriate, and what are its strengths and weaknesses. Basically I think it is, it is a major step towards an adequate salmon recovery program. Our criticism of it has been it is long on process and short on products.

The other major criticism we have had is it does not have an adequate definition of accountability. The good points are, it is a regional consensus, it was developed and by and large without lawsuits, and I think it is being timely implemented.

Under the issue of timely implementation, one of the problems we have is we have got the wrong yardsticks. We measure it by bashing Bonneville, we measure it by how much money is spent, we measure it by how much energy is foregone.

And if I can use a baseball team analogy, that is like measuring the success of a baseball team by how pretty and expensive the uniforms are and how high tech the equipment is. The reality is you get measured by how many runs you bring in, and the reality of the salmon strategy—and when we get it, the recovery plan, and I hope there is a melding of those two—the measure of the success of that program are how many fish runs we bring in. And quite frankly, nothing else matters.

As far as the issue of do we need to rearrange the institutional arrangements, while that is intellectually attractive and entertaining to talk about, being a refugee of the old river basin commission myself, I think that is not the question in today's world. Maybe something that is going to be 3 or 5 years in the making might be interesting to discuss, but I think the real issue here is not changing an institutional arrangement that is not working well, but rather does that institutional arrangement have the commitment to make this a successful program and a successful program is increasing run sizes, not increasing budget.

I question that commitment is there across the board. I think your analogy of a train wreck is appropriate. Ever since the demise of the salmon summit, if anything the trains have been accelerating dramatically. Is there a place for some crossing guard to avert the train wreck? I do not know, but I hope there is, and I hope that centers around words like accountability and commitment and focus on the real issue and not on Bonneville bashing or Corps bashing, or in my case, I can go do some NMFS bashing, which while fun, is not very productive.

But I would like to touch on a few things that were said today. One is we are using the lack of science to keep the status quo. We are using lack of science to avert bold action. I find that incredible in light of a system where we have in 13 years moved from about

3 million acre-feet committed for fish to 10 million acre-feet committed for fish, which by the way, is 10 percent of the Columbia River runoff, but it is also 50 percent of the U.S. storage in 1993 was committed exclusively for fish.

We have spent billions of dollars; we have diminished our generation capability by thousands of megawatts. Those are bold actions, that is not status quo.

And in light of that, I guess I would like to, as Mr. Chaney said, since I am well beyond the half of my third decade in my business with the Columbia River water management issues and fish and power generation, it is both politically attractive and I think socially attractive to chase the Holy Grail and the silver bullet and we have a long history on the Columbia of doing that. Hatcheries was the first one, which has not worked out too well. We said what we really need is to return closer to nature, so we developed spawning channels which failed, and lie in the Columbia River now dormant. We said nitrogen supersaturation is obviously the problem, so blip, blip and slotted gates are the issue and we cannot wait to prove whether they work or not. We have got to put them in because the fish cannot wait. We did, they did not. And now they lie in the Columbia.

We said we have got a real problem with turbine-related mortality. We cannot prove out the science because the fish cannot wait, we have got to get screens in. We are now on at least our third generation of screen design because we did not design them properly. We have spent hundreds upon hundreds of millions of dollars on that issue and I hear next month we are going to get a new spill proposal because, again, people do not believe the third generation of screens are working.

And of course we have the flow issue, which I have said, we have gone from 3 million to 10 million acre-feet and we have basically no time to test out whether or not those work because the fish cannot wait. So we just continue to increase that. We went to 10 million acre-feet in 1993 with zero commitment that anybody would show us accountability of its results, with zero commitment that it was producing more fish in 1993. The only commitment we got is we are going to ask for more in 1994.

And I guess I put forth that that is kind of a reckless approach to problems—just to say we do not know what we are doing, so we have to go do more of it. We have lost sight of our objectives so we must redouble our efforts, is not going to save the fish.

I believe that if you are going to avoid the train wreck, people have to turn their attention to the issue here. The issue is not money, and the issue is not energy, the issue is not water. I have heard lots of talk about water particle travel time. I have heard lots of talk about velocity. We do not have a water particle problem. The water particles are coming back every year. The problem is fish survival. And we do not know, as we move water particles faster and faster and faster, whether or not we are improving fish survival. We did know at one time 13 years ago that if you slow water particle travel time down enough, you can create a survival problem. And we all agreed to that and it was proven in the 1977 drought. But that is all punch card computer technology today and we are still living with it. We do not know now that we are moving

fish substantially faster during 1977 drought conditions, whether or not we are getting incremental increases in survival. And that is a question that must be answered. We have erred on the side of fish. We have committed half of the U.S. storage to fish. Now it is time to find out what we are doing for fish, to make sure that in the next two or three life cycles of these animals, we are truly going to make survival improvements to get these fish back.

The question and answer is really simple, Mr. Chairman. The issue is a four-letter word and it is fish.

[Prepared statement of Mr. Wright and attachment follow:]

Statement of
Al Wright
Executive Director
Pacific Northwest Utilities Conference Committee

Before the
U.S. House of Representatives
Committee on Natural Resources
Bonneville Power Administration Task Force

September 24, 1993

Congressman DeFazio, members of the task force, my name is Al Wright. I am the Executive Director of the Pacific Northwest Utilities Conference Committee (PNUCC). PNUCC is a non-profit association of public and private electric utilities and direct service industries in Oregon, Washington, Idaho, and Montana. We represent the three major Bonneville Power Administration customer groups on regional power and environmental issues. We appreciate the opportunity to express our views on recovery of salmon stocks in the Columbia Basin.

The first half of my testimony are responses to the questions that the task force asked us to address. In the second half, I will attempt to dispel several myths that pervade current salmon recovery folklore and that, I believe, are impediments to regional consensus on recovery of weak stocks.

RESPONSES TO QUESTIONS

1. *Is the NPPC's Strategy For Salmon an appropriate and sufficient framework for salmon recovery efforts in the Columbia Basin? What are the strengths and weaknesses?*

The *Strategy for Salmon* takes a first step toward an ecosystems approach to fish and wildlife protection and mitigation but more is needed. Most importantly, the Strategy needs a better conceptual framework. The Strategy has been developed by adopting thousands of fish and wildlife projects, which were proposed by various interests, and then attempting to build a strategy out of this "smorgasbord" of projects. The NPPC should first evaluate fish and wildlife needs and establish a conceptual base with goals and objectives and then adopt projects that meet those needs.

The Strategy and other fish programs in the Pacific Northwest do not focus on weak stock management or recovery. To serve as the framework for salmon, or other fish recovery, the conceptual base of the

Strategy must be a focus on weak stocks of fish. Such a focus requires that hatchery management and harvest management practices and regulations do not result in adverse impacts to weak wild stocks. It would also require the shift of monies from programs directed at strong fish stocks to those that are threatened or at risk.

Equally important is the requirement for accountability from the project implementors for products and results and from the NPPC for a comprehensive, scientifically-based, measurable, and cost-effective Strategy.

It should be noted that NPPC obligations are distinguishable from National Marine Fisheries Service (NMFS) obligations. NMFS is responsible for assuring the recovery of listed salmon.

2. *Is implementation of the Strategy for Salmon on track for timely completion? How well are federal and state agencies coordinating their activities with each other and with the Council to achieve timely implementation?*

Due to the absence of a solid conceptual framework to the Strategy and lack of accountability, scheduling and prioritizing of projects to achieve specific objectives in a reasoned and coordinated fashion is difficult to achieve. Allocating money to keep agencies and individuals happy, rather than to achieve program goals, seems to be driving Strategy implementation. As long as the availability of dollars drives implementation and the lack of a solid conceptual framework, there will be no coordinated, programmatic approach that results in successful salmon recovery.

3. *What can be done to facilitate water conservation and other changes in regional water management to provide increased flows for power production and salmon recovery?*

This question is premature. There is no credible, scientific information currently available that proves what water levels salmon require for their migration through the Columbia River system. This is the first question that must be answered. Once we know this, we can determine how that level of water can be provided.

4. Are existing institutions and institutional arrangements at the state and federal level adequate to implement salmon recovery plans? What improvements can be made?

PNUCC believes that the existing fishery management system does not work to the benefit of weak wild stocks of fish. However, we believe that weak stocks can be recovered within the existing structure of agencies and institutions, with a few changes.

PNUCC suggests that Congress recommend that the federal and state agencies and Indian tribes establish a coordinating body responsible for assuring that their efforts are coordinated and are consistent with regional goals and objectives for salmon recovery. The coordination group must also be accountable for assuring that their actions produce results.

PNUCC suggests that a Columbia River Ecosystem Approach be developed and adopted that:

- Defines goals and objectives.
- Includes a salmon recovery plan that takes a "gravel-to-gravel approach" and addresses the impacts of all the "4 H's" -- habitat, harvest, hatcheries, and hydropower.

- Balances the needs of anadromous fish, resident fish, wildlife and other river uses (e.g., flood control, irrigation, recreation, navigation, and hydropower) and does not promote conflicts among species. It must take into account the tradeoffs between species and among uses.
- Is scientifically based and peer-reviewed by a team of recognized scientists.
- Requires accountability to the Northwest delegation and the four governors. Elected officials must ask "where's the fish?" The fisheries agencies must define their goals and strategies. They must produce fish or they must provide reasons why the actions did not result in fish benefits.
- Incorporates the NMFS Recovery Team's Recovery Plan for Snake River Salmon and elements of the *Strategy for Salmon*.

Please comment on each:

- a) *Providing additional public involvement in existing federal processes, including review of annual operations;*

Except for applicants and for public comment on federal register notices, public involvement in Endangered Species Act processes are discretionary with the listing agency and can be extremely limited. Expanded public participation would be beneficial and appropriate, especially where the impacts of a listing on local or regional economies could be substantial. We believe that the National Marine Fisheries

Service public process during the Snake River salmon listing process should serve as a model for all federal agency process under the ESA.

b) Changing the membership, structure, or authorities of the Council;

Changes in the Council are not needed to produce a successful, cost-effective, implementable plan that recovers salmon and fish and wildlife. Changes in the plan are needed.

c) Incorporating salmon recovery measures into the Pacific Northwest Coordination Agreement;

Salmon recovery measures adopted by federal reservoir parties are already "incorporated" into planning under the Coordination Agreement. In fact, if submitted as part of the annual planning process, the measures have priority over hydropower concerns. Early and long-term agreement on an operating plan for fish would improve not only hydropower planning, certainty and efficiency, but would enhance the ability of the system to provide water for fish.

d) Adopting a new agreement or creating a new regional entity among BPA, the Corps, the Bureau, the Council and others to administer annual river operations;

No new agreement or regional entity is needed. Currently, NMFS, BPA, the Corps and the Bureau regularly consult on river operations.

e) Transferring a lump sum of money from BPA to the fish and wildlife agencies, while providing accountability for the results of the work funded;

This is essentially the current situation with the exception of accountability. Bonneville budgets a certain amount annually for fish and wildlife projects and contracts with the fish and wildlife agencies to implement the projects. There appears to be little oversight and almost no accountability for products or results. With stringent requirements for accountability, this arrangement may be workable and could produce results.

- f) *Legislatively creating a new entity or designating an existing agency with authority to mandate salmon recovery actions;*

The existing system has not yet been successful in recovering salmon, but it can be made to work. A legislative fix is not necessary. The problems can be solved within the existing structure of agencies and institutions.

ADDITIONAL COMMENTS

PNUCC wishes to comment on the following "myths of salmon recovery":

- MYTH #1.** There is a "silver bullet" that will solve the salmon problem, or "we know what to do, but we're just unwilling to do it."

The latest silver bullet that is being promoted by some interest groups is more water flows. These groups assume that fish move at the same speed as water and that if fish move faster, more fish will survive. There is no scientific information to support these premises.

Science indicates that there are a number of factors that have contributed to the decline of salmon and that all these factors must be addressed to assure recovery.

MYTH #2. The river operators have done nothing for fish, or "the river operators won't yield."

This is clearly not the case. Water has been provided for fish flows and spill since 1982 even though the biological value of these measures has not been established. In 1982, 3.45 million acre feet of water was set aside for salmon. The amount of water has continually escalated since that time, although no scientific information was collected to evaluate the effectiveness of providing this water. In 1993, over 10 million acre-feet of water (twice the storage capacity of Grand Coulee Dam) was provided for fish.

Since 1982, the electric customers of the Pacific Northwest have spent over \$1 billion on fish and wildlife measures and in foregone electric revenues. These funds have not only been spent to redress the impacts of hydropower development and operation, but also to restore habitat degraded by timber harvest, agriculture, mining, and grazing. In and of itself, providing water for fish has resulted in a reduction in the annual firm energy generating capability of the hydropower system of about 3,000 megawatts (enough electricity to supply three cities the size of Seattle). This has drastically changed the way we plan and operate the hydropower system and will require construction of new resources to replace this lost energy.

MYTH #3. Ninety-eight percent of the fish are killed at the dams.

Figures such as these are based on old and unreliable data collected 20 years ago in a hydropower system that no longer exists. This data was collected before implementation of the water budget, fish flows, spill, bypass systems, transportation, turbine efficiency, etc. Substantial improvements have been made

to make the hydropower system more fish friendly. But many people, including some fish agencies, are still relying on this old data. New data indicates significantly improved fish survival. Current studies of fish passing through turbines show that fish mortality is now about 6 percent rather than the 15 percent estimate that has been used in the past. New studies are needed to assess the current level of fish mortality throughout the system and to identify means to achieve additional increases in fish survival. A short paper discussing the need for new studies is attached.

MYTH #4. Harvest doesn't kill fish, or "we have to kill them to save them."

Fisheries agencies argue that there is no need to reduce harvest since the hydropower system kills so many more fish, harvest really doesn't make a difference. They claim that total fish mortality rates are the same with or without harvest. These statements simply are not true. The current change in fall chinook in-river harvest regulations between last year and this year demonstrates how harvest rates directly impact the number of adult fish returning to the spawning grounds.

Last year, an estimated 1,359 Snake River fall chinook returned to the mouth of the Columbia River, heading toward their spawning grounds high on the Snake River. NMFS approved an in-river harvest rate of 16.5 percent -- which meant that at least 225 of the threatened salmon were caught between the river mouth and the spawning grounds. Only 533 made it past Lower Granite Dam -- the last fish counting point between the fall chinook and their spawning grounds.

This year, the number of threatened fall chinook is up -- 1,616 are expected to reach the mouth of the Columbia. But NMFS has approved an increase in the harvest rate to 28 percent. This year, at least 459 threatened fall chinook will be caught and only 457 fish are expected to return to the spawning grounds. This increased rate means that even though the fish run is larger, fewer threatened fall chinook will return

to reproduce than last year. Clearly, harvest has a significant impact on fish runs! A short paper discussing this issue is also attached.

PNUCC

September 7, 1993

SALMON CURRENTS

Future salmon recovery efforts need to be guided by good science, not assumptions.

Results, Not Guesswork, Needed to Save the Salmon

For a good picture of salmon recovery over the past ten years and more, simply imagine a ball game with no scoreboard.

In a game like that, you'd never know who was winning. More importantly, you wouldn't know which tactics worked and which didn't. Strategy would be replaced by guesswork. Obviously, it wouldn't be a very satisfying game.

Nor has it been a satisfactory way of spending over a billion dollars to save threatened wild salmon -- and yet that is what the region has done, beginning with the first "experimental" recovery measures dating back to the early 1980s.

"There's never been good data," said PNUCC Executive Director Al Wright. "As a result, the region has thrown a tremendous amount of water and money at the problem, without knowing what really works. It's essential that we support ongoing research, so that future efforts can be based on science, not guesswork."

Take A Guess

Since the beginning, salmon recovery has been plagued by one big problem: for all the time, money and attention spent on recovery measures, no one really understands why certain salmon runs are dwindling or what will bring them back.

Hydro projects on the Columbia and Snake have certainly contributed to salmon mortality, as have other factors, including drought, disease, ocean conditions, predators, degraded habitat, overfishing, and short-sighted hatchery management.

Debate over how these factors interact occupies a small army of analysts and activists, keeping the copy machines humming full time.



Lots of Water, Poor Results

In the face of this uncertainty, the region has proceeded with a trial and error approach -- of which the calls for drawdown are the latest example.

In the early 1980s, the call was for increased flows. Fish agencies warned of declining salmon runs and called for increased river flows to prevent certain runs from becoming endangered.

The assumption, based on data collected in the 1970s, was that increased river flows would wash salmon to the ocean more quickly on their downriver migration. A second assumption held that this decreased travel time might lead to increased salmon survival.

At the urging of fish agencies, the Northwest Power Planning Council called for increased flows on an experimental basis. Utilities responded by releasing three and a half million acre-feet of water in 1983.

Over the years, the experiment has become an institution; this year, over 10 million acre-feet of water was released for fish flows. And although the releases keep getting bigger, the assumptions behind them have never been proven.

The results, however, have been disappointing. After ten years of ever-increasing fish flows, the salmon are worse off than before. In the early 1990s, the spring/summer and fall chinook runs on the Snake and the Snake River sockeye were listed as threatened or endangered under the Endangered Species Act.

The releases have also been costly. Because of the timing, water released for fish cannot be used for power generation, so utilities (and in turn, their customers) must pay for costly replacement power. Over the years, electric customers have paid over a billion dollars for these unproven recovery measures.

A Call for Better Science

In order to save wild salmon runs, PNUCC believes that what we need is not necessarily more water, but more information -- particularly about two of the most costly recovery measures: fish flows and spill. (Spill involves releasing water over spillways, rather than through turbines.)

*Saving wild salmon
will take actions
based on more
research, not just
more water.*

Two research projects are underway that will help determine what works and what doesn't in salmon recovery.

Recently, two studies were begun that could provide the first statistically reliable information about the effectiveness of increased river flows and the need for spill.

The first project -- called the PIT Tag study -- will use computer chips and a system of detectors to let scientists track migrating salmon as they make their way down river.

The PIT Tag project is the first large-scale attempt to update the studies on travel time and survival conducted in the 1970s, which most scientists consider to be flawed and outdated.

The four-year study, coordinated by the National Marine Fisheries Service, involves placing a computer chip -- called a Passive Integrated Transponder, or PIT Tag -- inside the fish. The chip and its antennae are about the size of a grain of rice and are designed not to harm the fish.

As the fish migrate, detector loops in the juvenile fish passage facilities at four dams "read" the chip, allowing scientists to measure survival and travel time with great accuracy.

A Big Question Mark

The first two years of the study will be spent testing the technology and refining the methodology. Nearly 35,000 hatchery fish were tagged on the lower Snake this year, according to NMFS study manager Robert Iwamoto.

If the approach succeeds, wild salmon will be tagged during the second two years. The preliminary results, due in November, are encouraging, Iwamoto said.

"The study will show to what extent there's a statistical correlation between travel time and survival," he said. "Right now people assume you can increase survival by decreasing travel time, but it's still a big question mark."

Considering that this year's 10 million acre-feet fish flush was based on that assumption, it's a big question mark indeed.

Better Turbine Data

A second study, this one on the mid-Columbia, focused specifically on turbine mortality. In the Turb'N Tag study, researchers at Chelan County PUD attached specially designed balloons to 1,200 hatchery fall chinook.

After the juvenile fish passed through turbines at Rocky Reach Dam, the balloons inflated, allowing scientists to collect the fish and measure mortality rates.

Nearly all of the tagged chinook survived in good health; the average mortality rate for all releases was 6.45 percent. By modifying turbine design, investigators hope to reduce turbine mortality to as low as 5 percent.

Demanding Results

Trial and error has been costly for the region and costly for the salmon. "We just don't have enough science," NMFS regional director Rollie Schmitten said recently. "There should be a lot of shame passed out if we can't do better in the near future."

Unfortunately, some fish advocates oppose the PIT Tag study. In place of science, they advocate a "just do it" point of view for their favorite recovery measure. "That approach might sell shoes," said Wright, "but it doesn't give us the information we need to do what's right for salmon."

To get that information, Wright said, there's a critical need for new fish detectors on the lower Columbia. Fish detectors at Bonneville Dam and John Day Dam currently sample too few fish to be effective. And there are no detectors at The Dalles dam.

The region should call on Congress to appropriate funds for fish detectors at *all* federal Columbia and Snake River dams, PNUCC believes. And it's imperative that the PIT Tag studies go forward. "BPA must provide the funding, and the region must provide the political will to support this essential research," Wright said.

"The Northwest is spending an enormous amount on salmon recovery," he added. "We need to turn on the scoreboard so we can see what works and what doesn't and stop relying on guesswork. The stakes are too high to do anything else."

PNUCC supports up-to-date scientific information on which to base salmon recovery measures.

We call on Congress for fish detectors at all federal Columbia and Snake River dams.

PNUCC

July 22, 1993

SALMON CURRENTS

Fishing for Trouble: Snake River Fall Chinook Threatened by Increased Harvest Rates

Conservationists often say that less is more. But for the Snake River fall chinook salmon, the reverse is true: more is turning out to be less.

Specifically, more of the threatened fish are expected to return this fall -- but more, way more, are going to end up in the nets and on the hooks of fishermen. Because even though the size of the run is going up, the harvest rate -- approved by the National Marine Fisheries Service (NMFS) -- is going up even faster.

An Unwise Harvest

This year's run of Snake River fall chinook will soon begin the final stretch of a long and difficult journey. These wild salmon were born far upstream in the Snake River. As juveniles, they navigated down the Snake and the Columbia to the Pacific, where they have spent the last two to five years on a migratory loop that extends as far north as southeastern Alaska.

Now, nearly ready to spawn, they are returning to the mouth of the Columbia for the final stretch -- back up the rivers to spawning grounds where they will mate, creating future runs of fall chinook.

The current run is expected to be larger than last year's. That ought to be good news, except for a decision by NMFS, which has responsibility for threatened salmon under the Endangered Species Act.

One Step Forward, Two Steps Back

Each year, NMFS issues a Biological Opinion which regulates river and hydro operations as well as harvest rates. The current Biological Opinion gives fishermen the green light to catch more of the fall run than last year. So the larger fall chinook run will result in fewer spawning salmon.

The increased harvest rate flies in the face of the region's enormous effort to save the Snake River fall chinook.

To correct this, PNUCC believes we must change the way the harvest is regulated -- both on the river and in the ocean.



"The new harvest rate makes absolutely no sense," said PNUCC Executive Director Al Wright. "NMFS is the agency that gave fall chinook protection under the Endangered Species Act. Since the fish are considered threatened, how can they justify increasing the harvest rate?"



The new harvest rates will allow fishermen to double or nearly triple their catch of the threatened run. So the crucial number of fall chinook making it past Lower Granite Dam will actually decrease.

Counting the Catch

The numbers tell the story. Every year, NMFS approves harvest rates that apply to the fall runs of "Upriver Brights" -- essentially, those fish heading toward the upriver reaches of the Columbia and the Snake.

The threatened Snake River fall chinook make up a small percentage of the upriver brights, but the harvest rate that applies to the total group applies to the Snake River fall chinook as well.

Last year, an estimated 1,359 Snake River fall chinook returned to the mouth of the Columbia, heading toward their spawning grounds high on the Snake. NMFS approved the river harvest rate at 16.5 percent -- which meant that at least 225 of the threatened salmon were caught between the river mouth and spawning grounds. Only 533 made it past Lower Granite Dam -- the last counting point between the fall chinook and their spawning grounds.

This year, the number of threatened chinook is up -- 1,616 are expected to reach the mouth of the Columbia. But NMFS has approved an increase in the harvest rate to at least 28 percent, and possibly as high as 45 percent, depending on the final estimated run size of upriver brights. The escapement could be as low as 347 fish -- a decrease of 35 percent from last year.

The new harvest rates will allow fishermen to double or nearly triple their catch of the threatened run. So the crucial number of fall chinook making it past Lower Granite Dam will actually decrease.

It's like joining a health club where the more you exercise, the more they make you eat -- not only do you undo all your progress, you actually weigh more after every workout. No one who cared about losing weight would join a club like that, and no one who cares about saving salmon should tolerate these increased harvest rates.

What *should* be done is obvious. Keep the 1993 harvest rate the same or lower than last year. That will allow fishermen to harvest 16.5 percent of the run -- the same as 1992. Because the overall run size is up, the number of fish caught will still increase, but the number of fall chinook passing Lower Granite Dam will increase also.

The Bigger Picture

But simply holding down the river harvest doesn't really address the problem, because most of the Snake River fall chinook are caught in the ocean, not the river. NMFS estimates that over half of the fall chinook caught in the ocean are taken by British Columbia fishermen.

Indeed, there's a long line of sport, commercial and tribal fishermen extending through southeastern Alaska, Canada, Washington and Oregon, all seeking a share of the harvest. Clamping down on river harvesters without addressing ocean harvesters merely punishes the last in line.

Increasing the harvest rate is like eating the "seed corn" for future runs.

Or, to use the weight loss analogy, it would be like pigging out during breakfast and lunch and trying to make up for it by skipping dinner. In order to be effective, the program has to address the total picture and all efforts must contribute to an overall goal.

In the case of the Snake River fall chinook, the overall goal should be getting more salmon past Lower Granite Dam, where they have an unobstructed path to spawning grounds.

Biologists and others refer to the number of fish getting to the spawning ground as *escapement*. In the long term, establishing an escapement goal at Lower Granite Dam has a big advantage over focusing on harvest rates. For one thing, it's simpler.

Fighting Over Fish

One reason harvest management is so complicated is the fact that it is governed by three sets of regulations.

NMFS and the states approve the harvest rate in the Columbia and Snake, but have limited authority over Canadian ocean harvest -- where most of the Snake River fall chinook are caught.

NMFS and the Pacific Fisheries Management Council set limits for the U.S. Pacific Coast between 3 miles and 200 miles offshore. For the most part, council members represent fishing industry organizations up and down the coast.

Since each group competes for a share of the fishery, there is little incentive to limit the harvest. Self-interest, rather than the interest of the salmon, often predominates.

And while the council's authority stops at the international boundary, the migrating salmon don't. Columbia and Snake river salmon migrate through Canadian waters along Vancouver Island, while Fraser River salmon migrate south through U.S. waters.

The Pacific Salmon Commission manages harvest under the U.S.-Canada Treaty which attempts to sort out which fish can be harvested from southeast Alaska to the international border. Once again, the many interest groups involved maneuver to get what they regard as their share.

Focusing On Survival

With so many people fishing for the salmon, it's possible to see why overharvesting occurs. The solution is to shift the focus from the fish that are caught to the fish that survive.

PNUCC believes the region should set a goal for the number of fall chinook passing Lower Granite Dam. This escapement goal should be included in NMFS' Biological Opinion for 1994.

In order to influence ocean catch, the goal would also have to be incorporated in *U.S. v. Oregon*, the legal finding that sets the ground rules for in-river harvests. There are several mechanisms for incorporating the escapement goal in the findings.

"Right now, the process works backwards," Al Wright said. "Fish managers decide how many are going to be caught, and that influences how many are left. By setting an escapement goal, we decide up front how many should make it back to spawn, and that gives us the harvest rate."

The region has invested enormous time and resources to save these fish, Wright added. "In effect, they're the seed corn for future runs. We need to protect them from overharvesting. Otherwise, we're literally fishing for trouble."

*First the region
should decide how
many fish are
needed to spawn.
Only then should
the harvest rates
be set.*

Mr. DEFAZIO. Thank you, Mr. Wright.

I guess I would like to hear Mr. Chaney and Mr. Baker specifically address Mr. Lovelin's assertions about the harm caused by drawdowns—briefly.

Mr. CHANEY. I think he is making it all up. [Laughter.]

Mr. DEFAZIO. I have not followed the record. Perhaps we could give Mr. Lovelin a chance to respond too. You know, I cannot tell you, I have enough trouble reading testimony for a hearing like this, let alone following the hearing records and everything that has preceded this. Is there a body of knowledge?

Mr. CHANEY. There is always a plausible basis for the most egregious errors or thinking, and yes, the long list of possible problem with drawdown include nitrogen supersaturation as a result of additional spill. That is probably the only one of import, and I do not know any scientist who has dealt with this who thinks that is an irresolvable problem. It is always a problem, it is not just a problem with drawdown, it is a problem with the projects we have out there right now.

I am not aware of any fishery scientist that does not work for the opposition that feels that there are any unresolvable problems here associated with the drawdowns.

Mr. DEFAZIO. Before I turn to Mr. Baker, perhaps Mr. Lovelin, you heard me ask the National Marine Fisheries person about drawdown and he did not share your view. What group of scientists or body of knowledge or studies are your concerns basically saying the drawdown is totally detrimental based on?

Mr. LOVELIN. Well, let me clarify again my points. I suggested that drawdowns could likely cause additional mortality to the very salmon that we are trying to enhance. I think the March 1992 test did reveal some concerns relative to drawdown. Again, as Mr. Chaney discussed, the gas supersaturation issue could potentially be resolved.

The increased predator concentrations, the increased adult salmon passage mortality could potentially be engineered through. Again, I would refer back to what I think I heard General Harrell say, 14–17 years, \$1 billion to possibly \$5 billion, depends on if you buy a Chevrolet or a Cadillac. We are talking about a long-term modification, potentially, of these projects—it cannot happen tomorrow.

But the real fundamental problem with drawdowns is, when you draw down the reservoirs, you cannot transport those salmon. Despite the opponents to transportation, you did hear the National Marine Fisheries Service say that transportation is beneficial to fish. So if you do draw down the reservoirs, you cannot barge those fish—you cannot collect them, you cannot barge them. So you have to make up that loss relative to the transportation program which has been estimated to be from 60 percent to 150 percent improvement.

Mr. DEFAZIO. Thank you. Just to clarify, and I am sure the National Marine Fisheries Service would like to respond, but I will respond from what I heard them say.

I heard them say that in their opinion it could augment other more effective programs, and in particular conditions, it could be an asset, and for some species it works better. But they did not say

we should design the whole system to put all the fish on barges, if that is what you are trying to say. They did not say that we should not do something that would be, you know, detrimental or as a substitute for barging. They did not make that point, because they were clearly supporting drawdown.

Mr. Baker, would you respond to Mr. Chaney and Mr. Lovelin?

Mr. BAKER. I tried to follow Bruce's comments point-by-point and get them all down. There were a lot of them and they came very quickly, but let me try.

Mr. DEFAZIO. Do it quickly, I have a lot of questions.

Mr. BAKER. I'll try to respond to as many as I got written down.

It is true that if you went out and you drew down any of these lower Snake pools tomorrow, there would be substantial mortalities to fish because the fish ladders as well as the juvenile bypass equipment was all installed assuming a full pool on those reservoirs. That is why the Corps of Engineers has been doing its proper work of engineering to see if we cannot modify these dams appropriately. And the Corps, I believe, will certify that its designs address the nitrogen supersaturation problem, address the adult passage problem.

As for predator concentration, I hear this one a lot. The evidence is that the drawdowns would actually help the current predator concentration problem at the base of each of these dams. When we restore a free-flowing river at the base of each of these dams, the squawfish and other predators are going to have to move downstream or over to the shore, away from the juvenile salmon that are coming out of those dams either over the spillways or through the turbines or through the bypass equipment, stunned, confused and not particularly able to defend themselves. They will get a brief respite in a free-flowing river before they reach predators that have actually been dispersed away from their current concentrations.

Now Bruce references the 14-17 years to do these installations and the \$1-5 billion, depending upon the design you pick. The Northwest Power Planning Council has contracted Harza Engineering, and Harza's studies so far indicate that the Corps' time line as well as the cost estimated by the Corps are just plain bloated and could be brought down substantially without incurring any risk of failure of either the modifications or of the projects while the modifications are being installed.

Mr. DEFAZIO. Okay, thanks. That—

Mr. BAKER. If I could just respond to transportation.

Mr. DEFAZIO. Very briefly.

Mr. BAKER. In your packet you have a memo from biologists from the U.S. Fish & Wildlife Service, Washington Department of Fisheries, Oregon Department of Fish & Wildlife, Idaho Department of Fish & Game, and from the Columbia River Inter-Tribal Fish Commission. They concluded, "It is apparent that transportation is not a substitute for provision of good in-river migration conditions for many of the salmon stocks evaluated in the Corps' studies. For some stocks, it appears that transportation may have been detrimental to fish survival."

Mr. DEFAZIO. Thank you.

Now I hate to characterize anyone's position on these issues, but Mr. Wright, if you do not mind, I am going to characterize you a little bit—you can disagree if you want, but it seems that you, pretty much, from reading your testimony and hearing your testimony, have sort of adopted what I would consider a middle-of-the-road position here. I have Mr. Baker and Mr. Chaney firmly convinced that we need to move as immediately as possible to enhanced flows, drawdowns. Mr. Lovelin says that that would be a disaster and questions the current programs entirely. He says we have wasted a billion dollars; salmon are worse off and that proves that the flows do not work. And it seems that what you are saying is you think the current position of the Council and their plan is reasonable, but we have already done a tremendous amount to increase flows and it is time to evaluate, you know, whether or not more flows are going to work, what those flows did actually accomplish and then you make your point for accountability. Is that a fairly accurate characterization?

Mr. WRIGHT. Well, you will never get me arguing that my position is a middle-of-the-road position, but I think that is an accurate account of what we are saying. As I said, we have moved a long ways, and it is not status quo. We have supplied a lot of water for fish that in normal drought conditions in the 1970s would not have been supplied.

We do not know what the effects of that are. We did not do a good job of laying out a monitoring program before we did it. Because the fish could not wait, we just did it. Now it is time to take account of that and see what we are doing. And if in the course of that in the next few years, we show that water particle travel time and velocities infinitely increasing have infinite fish benefits. Then I am going to be a lot more interested in talking about drawdowns and the \$1 billion or \$5 billion or \$10 billion or 14 years or whatever the numbers are than I am at this point in time, when I do not know that the existing level of flows may be exceeding what the fish actually need. I am convinced that the fish do respond to certain thresholds of conditions. We have proved in 1977. The flows got low enough, we had residual problems with fish migrating, it took 60 days and 60 days was too long. Now we are down in the less-than-30-day category and in some cases less-than-20-days. Now what does a day make. And I do not know an answer to that.

Mr. DEFAZIO. I guess what you are saying is you do not think that we should go forward at the moment with the flow augmentation or drawdown parts of the Council's plan. Where do you stand on the other parts of the plan implementation?

Mr. WRIGHT. I do not even disagree with what the Council says in its plan on drawdown as far as it says you must go out and evaluate both the consequences and the benefits of drawdown before you move ahead. That is what the Council's plan says and I do not disagree with that. But somehow that has got converted, particularly in the case of John Day, to just do it. And that is not what the Council's plan calls for.

Mr. DEFAZIO. What about the discussions we had earlier about the concerns about the time line on which the Council wanted to see the drawdowns on John Day?

Mr. WRIGHT. You know, I cannot responsibly comment whether the Corps is dragging its feet or not dragging its feet. I am sure it is not intentionally dragging its feet. Probably any government agency can move faster than it moves, but from what I have seen of what the Corps is doing, I think they are taking a responsible course of action trying to move forward, particularly on John Day. Senator Hatfield, I understand, is writing more money into appropriations this year. I do not know that more money is the answer, but we are getting it anyway.

Mr. DEFAZIO. Mr. Godard, I have not given you much chance to jump into this. Would you like to comment on some of the discussion here?

Mr. GODARD. Thank you. Just to say that my remarks were intended to complement what Al is saying, not that we think that the expenditures were wrong or flows are not helpful. We think they probably were. We just want to make sure everyone knows that there is a real price to be paid for those and it is tragic that the fish are not better off for it. The reason, we think, is the harvest, and I think we need to reform our harvest practices.

Mr. DEFAZIO. Well I do not think anyone has been ignoring harvest and I have obviously been a fairly consistent critic of PFMC for a number of reasons and then we have got the whole issue of the in-stream harvest, which is beyond generally the reach of the Federal Government to some extent, absent some extraordinary measures. But I did invite a representative of the commercial fishing industry to come, but they had to cancel at the last moment because they had a brief window of opportunity to go out and catch salmon. [Laughter.]

No, that is a little wrong. But I feel that there are some legitimate concerns that they can express too about the timing of harvest and who is allowed to harvest and where they are allowed to harvest and how it impacts the ocean fisheries versus river fisheries versus traditional fisheries, the tribal fisheries and others. It is not quite so simple either. You know, if we just prohibited the taking of fish, given the current situation, it is my belief we still would not see a major rebound or recovery. It is a contributing factor, but I do not think it is the greatest factor.

I just cannot resist a comment on this, I relate mostly to forest issues because I spend an awful lot of time on that in my District, and as we moved through the owl debate, we first had the forest plans. And the forest plans included one option which estimated the biological capability of these forests if there were no constraints upon harvest. What could the land grow if the rain just fell and we stuck trees back in there after we harvested them or maybe we even fertilized them, but what is the maximum biological capability. And there is quite a large number there, 5 billion or so board-feet, and there are still people in the industry who say we want that 5 billion board-feet. But the point is that we have conflicts here between values, and you know, the public would not accept all the public forest being industrial lands and managed as industrial lands. And it would not give us the range of values that we want in terms of the environment on those lands.

So it is a number that is theoretical, sure, and it is always useful to see the theoretical margins, but it is not a point at which we

should commence the debate. I think that to question where we are at today in terms of the Council's plan and our past efforts—and I think I am hearing that—I really think that you are replicating some of the mistakes that were made by the forest industry in that debate. And it led ultimately to a total shutdown of the forest, which is going to continue. I do not believe the President's option is ever going to be implemented, or not in the near future. And you know, that is a catastrophe that could have been averted if the forest industry had accepted reasonable plans—or John Kroll had not ripped them up I guess is more accurate—in the early 1980s. We would have had in place plans over which we would be disputing about their revision, but there would be a very robust forest industry being conducted on those forests. And as it is, there will be none. And I just do not want to see the power industry repeat those mistakes.

Your testimony, Mr. Lovelin and Mr. Godard comes very close to that, very close to that. And I have just got to caution you, that you do not want a federal judge running the hydropower system of the Pacific Northwest. You just do not want that. And I do not want it. And I think we need to be a little bit more contributory. I am not saying you should not question what we are doing, and we should, but you know, to say our only concern should be the cost is like saying, well, our only concern should be what could the forests produce. That is not our only concern, that is not socially acceptable, and it is not the law and the law is not going to be repealed.

Mr. LaRocco, I have more than exceeded my time. It is your turn.

Mr. LAROCOCO. Well thank you.

I have a personal belief that if steelhead runs were at the same state that salmon were in right now, that this hearing would be held at Boise State University at the stadium because I think that, you know, you sort of feel like salmon runs are one thing, but we always have the steelhead. And Mr. Chaney, what is the status of the wild stocks of steelhead in the Snake River drainage? Are you concerned if the wild salmon go extinct that wild steelhead and hatchery steelhead will follow them? And what measures can be taken that will prevent extinction of the steelhead runs?

Mr. CHANEY. Our information on steelhead is not nearly as good as it is on salmon, for a number of reasons. Salmon have been in trouble for a long time and they are a more fragile critter and they are more susceptible to mortalities, the dams. Also the steelhead's life cycle is such we have a difficult time finding them during the spawning period. But based on a lot of evidence that is currently being gathered and more on a lot of anecdotal evidence of people who are out there, year after year after year after year, there is clear and emerging evidence that our wild steelhead are in serious trouble. In fact, I would not be at all surprised to see a petition to list group A steelhead in Idaho within the next 2 or 3 years, if something is not done to improve juvenile migrant mortality.

Collection and transportation seems to work better for steelhead than it does for salmon, just given the inherent difference in the animal. The chinook are much more vulnerable to stress and injury. But collection and transportation the way it has been handled in the past, logistically tends to focus on when there is most fish

there to collect and transport. And so it cuts off the ends of the wild fish. And frankly, wild animals, we are finding, just do not handle very well in these barges. Notwithstanding the fact Gary Smith said their scientists actually have found—and it is disputed—that there is some benefit to transportation as compared to killing them all at and between the dams, that is a different kind of benefit than most people might imagine.

But the fact of the matter is, in our discussions with the people at Idaho Fish & Game and talking to people who have been out on the river for years and years in the same places, wild steelhead are in serious and growing trouble in Idaho.

Mr. LAROCO. Well what impact does that have on the hatchery population then?

Mr. CHANEY. Oh, in time, if we have learned anything, if Darwin was onto something, and I think he probably was, notwithstanding those that want to prove that fish do not need a river, in time what the evidence is showing is that if we do not have a relatively robust diverse wild population of fish to provide brood stock for our hatchery operations, over time the productivity of those hatchery populations tends to start the slide down a long, slippery slope. We are still learning a lot about these fish, we are still learning a lot about hatchery propagation, but that is something that most farmers learned a long time ago and fish do not seem to be an exception to that rule.

Mr. LAROCO. Well that seems to be new information, quite frankly, Mr. Chaney. With all the focus on salmon, I do not think we talk about steelhead very much. But your concern, after 30 years of study and research, is that the wild stocks are in trouble?

Mr. CHANEY. Absolutely, and I think that is going to become increasingly evident with the research now that particularly Idaho Fish & Game is doing in the tributary spawning and rearing areas including those pristine areas in the Frank Church Wilderness. The habitat there is seeded at such an extremely low level that it is cause for serious concern.

Mr. LAROCO. Mr. Lovelin, I believe, correct me if I am wrong, did you say that barging needs to be improved and enhanced. Does that mean that we need to get the fish into Idaho water faster or to the barges faster? Is that part of any enhancement that you think we need, particularly in drought years where, you know, we may not have those flows?

Mr. LOVELIN. When I mentioned enhancements in the transportation program, I think principally the ones I was talking about, the options, are a release strategy and maybe purchasing additional barges so there is less fish density, less stress on the chinook themselves. Maybe the barges are held, taken down closer to the estuary and held there until the fish are kind of acclimated to the conditions and then they are released.

The point you are making though is an interesting one, that when we did divide the biological benefit by the cost or some measures, we did find that on the positive side in the Northwest Power Planning Council's plan, that their flow measures, it evolved into being one of the more cost-effective measures. And we found the reason for that was because it helps speed the salmon smolt down to the collection facilities and gets them out of the river and pushes

them down in barges at that point. So we think that the higher flows in the Snake would help move the fish down to the Lower Granite Dam where they can be collected or collection facilities below that.

Mr. LAROCO. Are we talking about flow augmentation there? Is that my understanding?

Mr. LOVELIN. Yes, that is right. I think that is what we are talking about with the Northwest Power Planning Council's plan.

Mr. LAROCO. Okay. Mr. Godard, maybe I do not understand, but could some of those people who had higher rates, could any of that have been due to WPPS? Do I just misunderstand, none of that went to the rate base, to the ratepayers?

Mr. GODARD. No, why would that be? We do not own WPPS.

Mr. LAROCO. You do not own WPPS. Anybody in the Northwest—the people in your utility district.

Mr. GODARD. We produce our own power supply system projects backed by the Bonneville Power Administration.

Mr. LAROCO. So you were talking about people who had their higher rates in your testimony, the people who had to mow lawns and so forth.

Mr. GODARD. The higher rates that we are seeing are due to salmon, because of the 10 million acre-feet that is brought down in the spring time instead of the winter time. So we do not have the power available that we otherwise would have had in the winter time to heat homes, and so we have to buy more expensive sources to make up for that, and that is what is pushing our rates up. And you know, we are not saying that people should not pay for salmon, or that flows are not helpful to salmon. I feel a little bit mischaracterized here. What we want to bring to this table is the people who were not invited to the hearing, the people that are paying the bills here. And I think what they are asking for is a product. You know, what is the result of this effort. And it is terribly frustrating that after 10 years and a billion dollars, that the fish are worse off. We do not think that is because flows hurt fish. We did not say that. We just think the flows helped fish and those fish went somewhere, and where they went was into the nets and into the hooks. And that is okay, you know. Fishing is okay; it is just how it is done. It cannot be done in a mixed stock fishery where you get the strong stocks and the weak stocks at the same time. It makes more sense to do the fishing in Idaho and northeast Oregon than it does at Elwaco and Astoria or the Gulf of Alaska.

We are just trying to raise that that is another element of this problem. We have done a lot, 10 million acre-feet, people are paying for that. The fish are not better off so there is more that we have to do.

Mr. LAROCO. Okay.

Mr. DEFAZIO. Well I am glad to hear that because in reading your testimony and in hearing the testimony, I think then maybe I misperceived it, that you do in fact think that the flows have been helpful. But the problem is, to the extent they have been helpful, it has been offset by other concerns, particularly harvest, in your mind. I am pleased to hear that, because I did not read the testimony that way, nor Mr. Lovelin's comments that way.

I guess the other side of the argument is we can say if we had not had the augmentation of the flows and the help that we got there, that some might not be extinct, or even more stocks might be endangered. So that is another way to look at it.

Just to Mr. Chaney, if you could address this. I saw the Idaho wilderness example and I think that is an interesting example. Of course, it is not totally controlled in that the Elk River, in my district, without impoundments, with virtually no timber harvest activity, with no major industrial development, with a very small amount of residential development, is also seeing some significant problems in returns. So you know, maybe I would say that you have got to give something to Mr. Godard and Mr. Lovelin's arguments about harvest here too because even on virtually pristine wild and scenic rivers, which I got most of the Elk in, we have got problems.

Mr. CHANEY. Oh, there is no question about it. Well, since the passage of the Magnuson Act, harvest clearly was out of control and that is what prompted in large part the Magnuson Act, and since that time, ocean harvests on the stocks that concern the Columbia River have been reduced probably somewhere in the neighborhood of 75 percent. But mixed stock fisheries are always going to be a problem when you have got weak stocks mixed in with them.

Mr. DEFAZIO. Or by catch for other non-target species, like when they are going for hake or whiting or whatever they call it.

Mr. CHANEY. Well mainly the problem is when you are going for other salmon. And there has been much ado made about the killer ocean and the drought and those kinds of things. But you know, the killer ocean has always been there and we have recurring droughts and over 10,000 or 20,000 years, the Columbia River did just fine, Snake River stocks did just fine, because they were producing at a very high level of productivity. That is the whole nature of the beast, they produce these enormous numbers of fish, and that is the survival mechanism that gets these fish past all of these natural variations in weather and ocean productivity and all that.

The problem is the dams have sapped that enormous productivity and resiliency; the fish cannot stand it. Some naturally occurring event—if the fish were at a healthy level, you know, they would just skip right on past it—becomes catastrophic. But those naturally occurring events affect all stocks, whether it is a run with dams or not. But it does not mitigate against the fact that, you know, we measure how many fish the dams kill. That is not really a subject of much debate. We argue about whether it is 85 percent of the juveniles or 75 percent, but it is such an enormous impact, it saps the ability of the runs to withstand these natural phenomena.

Mr. DEFAZIO. Right. I do not think we are contesting that, and we are trying to figure out how to deal with that in the best way possible. But I just do want to make the point that—and I think it is well taken—you know, we have always talked about the four Hs, it is more like four Hs plus some other factors—

Mr. CHANEY. Plus nature.

Mr. DEFAZIO [continuing]. That we need to be taking into account in dealing with the totality of the salmon.

I do not have any further questions for this panel unless Mr. LaRocco does.

Mr. LAROCCO. Mr. Lovelin, what do you think the percentage of juvenile kill is by the dams, what do your biologists tell you?

Mr. GODARD. Can I address that?

Mr. LAROCCO. No, I want Mr. Lovelin to.

Mr. GODARD. We operate dams, maybe we can add something to it.

Mr. LOVELIN. I will answer it. There are certainly a lot of numbers out, I see that the——

Mr. LAROCCO. But you have biologists that are associated with the Columbia River——

Mr. LOVELIN. I see that there was a real nice publication put out by the state of Idaho which says it is upwards of 99——

Mr. LAROCCO. Well what do you think?

Mr. LOVELIN [continuing]. Percent.

Mr. LAROCCO. What do your biologists tell you?

Mr. LOVELIN. Well, I am not going to be able to give you certainly an exact number.

Mr. LAROCCO. But you have biologists that work for the Columbia River Alliance, do you not?

Mr. LOVELIN. We consult with biologists both with PNUCC and the agency biologists. The thing that——

Mr. LAROCCO. Okay, well what do they tell you?

Mr. LOVELIN [continuing]. Let me make a point, if I can, and I will answer it this way.

Mr. LAROCCO. Sure.

Mr. LOVELIN. Almost 80 percent of the salmon are taken out of the system. The ones that we are talking about now, the Snake River chinook, are taken out of the system and transported around the dams, and they are transported around the dams healthy. They are released; there is a latent mortality there. There is some conjecture of what is that latent mortality, but I would say relative to that number, it is kind of odd when we hear 99 percent or 90 percent of the fish are killed by the dams when the simple fact of it is 80 percent or more are taken out and they are moved around the dams via the transportation program. So you know, I am not going to come up with an exact number.

Mr. LAROCCO. I am not looking for an exact number.

Mr. LOVELIN. All I am going to tell you is that the 90 percent plus number is incorrect.

Mr. LAROCCO. Well, how do you know that then, what number do you use?

Mr. LOVELIN. From the simple fact, sir, that the transportation program, the way it is operated today, does remove the fish out of the river, barges them around the system healthy.

Mr. LAROCCO. Do you use 60 percent?

Mr. LOVELIN. I do not use a number.

Mr. LAROCCO. Are you concerned about juvenile mortality——

Mr. LOVELIN. Yes.

Mr. LAROCCO [continuing]. Through the dams.

And do you have biologists who are looking at that?

Mr. LOVELIN. And we are equally as concerned if you remove the transport system and leave the fish in the river, because we know if you do that, you are going to have fewer runs come back in the future. That is why we think a focus ought to be on improving transportation, whether it be interim or not, we will allow that. But again, measures can be put in place in the near term, within this next year, not 10 years down the road.

Mr. LAROCO. Okay. And Mr. Chaney, what do you think the juvenile mortality is on the dams?

Mr. CHANEY. I basically agree with the general range of numbers that National Marine Fisheries Services and most of the region's fishery agencies use. They generally convert those into a percent of man-caused mortality, which are the numbers that were reflected here. But I guess that depends on the year. But I think as a rule of thumb, they are basically using about 15 percent per project because, you know, in high flow years it is less and low flow years it is more. And then you throw in the complication of not being able to do more than scientifically wild-ass guess about delayed mortality of fish, so 15 percent per project seems to be the best working number.

Mr. LAROCO. And where does the 90 percent come in? What am I not—

Mr. CHANEY. Well, you are getting the cumulative effect. When you do 15 percent and then 15 percent of what is left and 15 percent of what is left and 15 percent of what is left and then you adjust for delayed mortality of hauled fish, you are not getting necessarily 90 percent of the total number of juveniles that started downstream.

Mr. LAROCO. Because Mr. Lovelin's point is correct then, if barging some down past the projects?

Mr. CHANEY. I have lost you there.

Mr. LAROCO. Well he made the point that you are not losing them at the collection point because—

Mr. CHANEY. You are losing them after you dump them out of the barges.

Mr. LAROCO. Right, and so that is not due to going through the dam system then?

Mr. CHANEY. No, but that is included in the calculations of mortalities related to operation of the projects.

Mr. LAROCO. Okay, and anybody looking at that statistic might think that that is as they come into the pools and move down to the dams, is that right, Mr. Lovelin?

Mr. LOVELIN. That is what we believe that number is based on—salmon smolt that remain in the system and are not transported around.

Mr. LAROCO. That remain in the system. Would you agree with that?

Mr. CHANEY. No, I think all of the calculations that I have seen in use factor in an estimated delayed mortality to those fish that are barged through the system. I mean there is an attempt to account for an obvious delayed mortality in those juveniles that are hauled.

Mr. LAROCO. Through stress?

Mr. CHANEY. Yes, due to stress in handling.

Mr. LAROCO. Mr. Godard, you wanted to respond to that?

Mr. GODARD. Yes, thank you.

To summarize the common wisdom that Ed was talking about, the assumption is that of the fish, the smolt, passing the dam, 85 percent would survive and you multiply that through the number of dams and you say the dams killed 90 percent of them. That 85 percent, no one has ever done a study; that is just someone's good idea. The first study is the one that Sonny Smart in Chelan did. He put fish in above the dam, run them through the turbine, you have a device on it that inflates, and then you can capture all the fish that you put through there and see how many are alive and how many are dead. And the results of their work showed that they recovered alive 94 percent of the fish, some fraction of those got away from both the dam and the recovery method, and so the number that was killed by the dam was something less than 6 percent, by that study.

Mr. LAROCO. Are those run-of-the-river dams or are those impoundment dams?

Mr. GODARD. Those are the same as the Corps of Engineer dams and the Snake River dams and the Mid-Columbia dams, all the same type.

Mr. LAROCO. They have reservoirs?

Mr. GODARD. They all have reservoirs, but they are all run-of-the-river. The only ones that are different are Hells Canyon and Grand Coulee with large storage, but they also block fish and no fish go through the reservoirs.

The problem with the 90 percent is it has the underlying assumption in it that through nature all those fish would have survived and become adults anyway. And that just is not the fact, only a small portion of those, some 1 or 2, 3, 4, 5, 6 percent of those would have become adults anyway. So our biological work shows that the mortality is substantially less than the 15 percent that has been assumed and the 90 percent is just a misrepresentation of what is happening to the fish.

Mr. LAROCO. Mr. Baker.

Mr. BAKER. Well BPA itself estimates that fully 80 percent of the human-inflicted mortalities on these fish in the Snake River basin are caused by the dams. I have made that point at a recent debate that Mr. Lovelin and I had before the Washington State Council of Farmer Co-ops. Mr. Lovelin was asked during question and answer whether he agreed with that figure, and he did. So I assume that his opinion has not changed.

In any case, I would like to point out another experiment that was done by the Mid-Columbia PUDs where 80,000 summer chinook juveniles were released from the Wells Dam during 1992. By the time those 80,000 chinook smolts had gotten downstream just past Rocky Reach Dam to Rock Island Dam, only two remained. So I would conclude from these two experiments—the one Mr. Godard just related and the one that I just did—that in fact the reservoirs are taking a very heavy toll indeed on migrating juvenile salmon.

Finally, Mr. Lovelin's cost/benefit analysis is based upon a life-cycle model that frankly has been pummeled in peer review, largely rejected, mainly because it assumes little or no delayed mortality when we release these smolts from the barges at the estuary. If I

could draw analogy, what Mr. Lovelin is suggesting is that we have a bus, and it crashes. One or two of the hundred passengers are killed at the crash site, the rest are taken to the hospital where all but one of them dies very quickly thereafter, and the other one expires a few months later. Our conclusion? Hospitals kill people. That is not a valid conclusion.

Mr. DEFAZIO. Not a good place for fish either.

If I could, this is kind of fun, but we are not going to spend too much more time on it. I mean I would be very briefly interested in Mr. Godard's response to your second study—very briefly.

Mr. GODARD. Well, the first thing you have got to know is that those are hatchery fish and we all are questioning what quality of fish that hatcheries are turning out. So it may have a lot more to do with hatchery quality fish than what happens when they pass dams.

Mr. DEFAZIO. Okay, and then the other point I would make in terms of your experiment that you described is most of what I have heard here is that the concern is not—except for Mr. Lovelin's concern about the nitrogen levels and some of the other things that he has raised—having to do with the fish. Most everyone else who has raised questions about the dams is talking about the reservoir. So I mean yours were at the dam itself.

Mr. GODARD. That was where the discussion was centered, you are right. There is another source and that is passage through the reservoir and predator mortality.

Mr. DEFAZIO. This has been a healthy discussion, but this panel is not going to second-guess or revisit these issues. I mean the Council has certainly a lot more time and expertise to devote to the issue of flows and drawdowns than I do. Their plan, to the best of my knowledge, stands, and their plan says that we are moving in this direction. They did have three qualifications which had to do with the biological effectiveness, whether or not it was technically infeasible and economically infeasible. This is the direction we are going. We all like to find interesting topics to really beat each other over the head with, but this committee is looking at a lot of things and we are going to raise some suggestions for possible legislation and some other changes by agencies and so forth, but we are not going to revisit this issue. The Council has spoken and they are the authority on the issue, as far as I am concerned, until someone disproves them under one of those three conditions.

I want to thank the panel. I think that woke everybody up. And since everybody is so awake, we are going to go right through without stopping for lunch.

So next panel.

PANEL CONSISTING OF MARVIN L. PLENERT, DIRECTOR, REGION 1, U.S. FISH AND WILDLIFE SERVICE; SHERL L. CHAPMAN, EXECUTIVE DIRECTOR, IDAHO WATER USERS ASSOCIATION, INC.; JOE STEGNER, STEGNER GRAIN AND FEED; KENNETH R. PEDDE, ASSISTANT REGIONAL DIRECTOR, PACIFIC NORTHWEST REGION, BUREAU OF RECLAMATION; AND KAREN GARRISON, NATURAL RESOURCES DEFENSE COUNCIL

Mr. DEFAZIO. Let us proceed here, last panel. We get through this, and everybody can go have lunch. We will just start. Mr. Plenert, you are up. I notice that we are missing one person, but I assume she is here today someplace and just perhaps out of the room.

STATEMENT OF MARVIN L. PLENERT

Mr. PLENERT. Thank you, Mr. Chairman.

Mr. DEFAZIO. Mr. Plenert's agency was one of the agencies that was unable to provide the testimony ahead of time. And I will certainly be communicating with the highest authorities I can find in these agencies in the future to see that the people who actually write the testimony and do the work are allowed to get it here on a timely basis.

Mr. PLENERT. I will accept the public flogging for higher-level tinkering.

Mr. DEFAZIO. All right.

Mr. PLENERT. Mr. Chairman, Congressman LaRocco, thank you for inviting me to testify before the Bonneville Power Administration Task Force.

In the time allowed, I would like to highlight my response to the questions you asked in your letter of invitation, and I would request that the full statement appear in the official record.

The recovery of salmon and steelhead stocks in the Columbia River basin is one of the most complex and challenging fish and wildlife resource issues facing the Nation today. Dam construction, modifications to the river basin's hydrology, loss of fish and wildlife habitat and the other human-induced impacts, have all contributed to the decline and brought the ecosystem to a point where several fish and wildlife populations, including salmon, are at risk of extinction. In fact, the Snake River Coho is already extinct.

This hearing by the task force will be helpful in focusing national attention on this issue and in the accelerating recovery and rebuilding efforts. Substantive and timely actions are required.

In order to have an effective recovery and rebuilding program for salmon in the Columbia River basin, cooperation among all of the agencies and the many users of the system is needed. In fact, cooperation is mandatory.

The Northwest Power Planning Council has done a good job coordinating the recovery and rebuilding efforts for salmon throughout the fish and wildlife program and the development of their *Strategy for Salmon*. The major strengths of the *Strategy for Salmon* is its basin-wide approach to addressing impacts on the salmon at every stage in their life cycle for all activities that impact salmon.

While the framework the Council established has identified all the necessary elements for an effective recovery and rebuilding effort, the measure of its success will depend on future actions. It is unfortunate that the Council was unable to establish many of the critical elements of rebuilding plans, including rebuilding targets and schedules for all salmon stocks, as well as survival targets and performance standards. Successfully fleshing out these important details of rebuilding plans will require sufficient funding from the Bonneville Power Administration and the cooperation of many implementing agencies and input from the National Marine Fisheries recovery planning effort.

The Fish & Wildlife Service under the Coordination Act, has been working with the States and tribes to develop a Columbia River system flow and reservoir operations alternative that if implemented would lead to the rebuilding of salmon runs.

The Service's 1993 alternative was submitted to the Corps of Engineers in our March 1993 Coordination Act Report, but was not implemented. The Service will continue to work with the tribes and state agencies to modify the operations alternative, which will incorporate the needs of listed species and species of concern in the Columbia River basin.

Bonneville, the Corps of Engineers and the Bureau of Reclamation have agreed to proceed with full-scale analysis of our alternative through their Systems Operations Review. We urge these three federal agencies to give serious consideration to this alternative, and are confident that our work will be beneficial to future deliberations by the Council and the action agencies.

There are many obstacles to recovery and rebuilding of salmon runs in the Columbia River basin that the Council has addressed by developing intermediate-term actions in their *Strategy for Salmon*. One of the most difficult obstacles is how to overcome the impacts on fish migration of the four lower Snake River dams and impoundments. The dams and reservoirs have greatly reduced water velocities through the lower Snake River, which has increased the time of exposure for migrating smolts to predation, high water temperatures and diseases.

Another strategy for overcoming these effects is to decrease the cross-sectional area and volume of the reservoirs to increase water velocities. The *Strategy for Salmon* calls for drawing down reservoirs behind the four lower Snake River dams by April of 1995, to increase water velocity during the juvenile fish migration period unless it is found to be structurally, economically or biologically infeasible, or inconsistent with the Northwest Power Act.

We will continue to work through the Council's process and with the federal action agencies to evaluate alternatives and implement drawdown. As I said earlier, for any part of the Council's fish and wildlife program to be successful, it must have adequate funding to carry out its mandate. For the future, we suggest that a portion of the Bonneville's reserves be dedicated to ensure fish and wildlife funding stability. The establishment of additional mitigation trust funds would also help stabilize funding of specific fish and wildlife program activities. For the near term, Bonneville should budget sufficient funds to implement the Council's program.

In order for implementation of the Council's program to be effective, better regional coordination must be ensured among the many federal, state, tribal and private entities. There must be an anticipatory approach to recovery of salmon as opposed to the current species-by-species manner that threatens to overwhelm state, tribal and federal natural resource agencies. Most efforts to better organize governments involved in salmon restoration have not been broad enough or have lacked adequate accountability to ensure that all federal agencies pursue coordinated policies in working with state and tribal governments to restore salmon coast-wide.

The Department of the Interior, particularly the Fish & Wildlife Service, is working with federal, state and tribal and local governments and the private sector to develop a multi-agency specific salmon restoration initiative. It would provide a coordinated watershed-based approach to restore ecosystems and habitats for salmon. This initiative and continued commitment of the Department of the interior should help improve coordination and accountability among the agencies implementing recovery efforts in the Columbia River basin.

This effort will also build a renewed interest stimulated by the recent conference to promote cooperation among agencies in the restoration of watersheds.

Finally, we must turn these stocks around. Secretary Babbitt is fully committed to the restoration of productive salmon stocks. The Service has the authority, flexibility and will to develop and implement an effective coordination mechanism without legislation. It will be difficult to require all interested parties to step away from strident positions of the past. Accordingly, I am confident that we now have the appropriate leadership to chart the course necessary to restore these stocks.

Again, thank you for the opportunity to appear here today, and I will be happy to answer any questions that you might have.

Mr. DEFAZIO. Okay, thank you, Mr. Plenert. Mr. Chapman.

[Prepared statement of Mr. Plenert follows:]

**STATEMENT OF MARVIN L. PLENERT, REGIONAL DIRECTOR,
U.S. FISH AND WILDLIFE SERVICE, PORTLAND, OREGON,
BEFORE THE BONNEVILLE POWER ADMINISTRATION TASK FORCE
OF THE HOUSE COMMITTEE ON NATURAL RESOURCES IN BOISE, IDAHO**

September 24, 1993

Mr. Chairman, thank you for the opportunity to appear before the Task Force today to address the recovery and rebuilding of salmon stocks in the Columbia River Basin. We appreciate the Committee's efforts to examine measures to protect, mitigate, and enhance salmon populations, along with the adequacy of the institutional arrangements for implementation of those measures.

The recovery of salmon and steelhead stocks in the Columbia River Basin is one of the most complex and challenging fish and wildlife resource issues facing the Nation. Dam construction, modifications to the river basin's hydrology, loss of fish and wildlife habitat, overharvest, and other human-induced impacts have all contributed and brought the ecosystem to the point where several fish and wildlife populations, including salmon, are at risk of extinction. The work of the Task Force will be helpful in focusing national attention on this issue and in accelerating recovery and rebuilding efforts. Substantive and timely actions are required.

We offer the following responses to your written questions and hope they will be helpful in your deliberations.

- 1) Is the NPPC's Strategy for Salmon an appropriate and sufficient framework for salmon recovery efforts in the Columbia Basin? What are the strengths and weaknesses of the Strategy for Salmon?

An effective recovery and rebuilding program for salmon in the Columbia River Basin requires cooperation among a large number of agencies and the many users of the river system. We commend the Northwest Power Planning Council (Council) for its efforts to coordinate the recovery and rebuilding efforts for salmon through its Fish and Wildlife

Program and the development of its Strategy for Salmon. The major strength of the Strategy is its basinwide approach to addressing impacts at every stage of the life cycle for all activities that impact salmon.

While the framework the Council established has identified all the necessary elements for an effective recovery and rebuilding effort, the measure of its success will depend on future actions. For example, the Council was unable to establish certain elements of rebuilding plans, including rebuilding targets for all salmon stocks, and rebuilding schedules, as well as survival targets, and performance standards.

Successfully fleshing out these important details of rebuilding plans will require sufficient funding from the Bonneville Power Administration (Bonneville) and others, the cooperation of many implementing agencies, and input from the National Marine Fisheries Service's (NMFS) recovery planning effort.

In its 1993 biological opinion for operation of the Federal Columbia River Power System, NMFS included a number of measures necessary to achieve stability of listed Snake River salmon populations that went beyond the Council's Strategy. For example, NMFS established flow targets for both the spring and summer juvenile migration periods that exceeded Council measures "aimed at providing" certain flows in the Snake and Columbia rivers through only June 15. This year was the first time in history that the Columbia River system was operated to meet hard flow targets for salmon. We expect that additional flow related measures will have to be revisited by the Council in light of NMFS's 1993 biological opinion and in response to future biological opinions for salmon and other listed species.

The Council's mandate is to rebuild all anadromous fish stocks impacted by hydropower development to protect, mitigate, and enhance fish and wildlife populations to achieve healthy and harvestable populations. This will necessitate actions beyond the requirements for population stabilization under the Endangered Species Act.

Under the Fish and Wildlife Coordination Act, the Fish and Wildlife Service has been working with the States and Tribes to develop a Columbia River system flow and reservoir operations alternative that we believe would lead to the rebuilding of salmon runs. The Service's 1993 alternative was submitted to the Corps of Engineers in our March 1993 Coordination Act Report, but it was not implemented.

We have continued working with the Tribes and State agencies to modify the operations alternative to incorporate what in our opinion are the needs of listed species and species of concern in the Columbia River Basin. Bonneville, the Corps of Engineers, and the Bureau of Reclamation have agreed to proceed with full scale analysis of our alternative through their System Operations Review. We urge these three Federal agencies to give serious consideration to this alternative and are confident that our work will be beneficial to future deliberations by the Council and the action agencies.

There are many obstacles to recovery and rebuilding of salmon runs in the Columbia River Basin that the Council has addressed by developing intermediate-term actions in their Strategy for Salmon. One of the most difficult obstacles is how to overcome the impacts on fish migration of the four lower Snake River dams and impoundments. The dams and reservoirs have greatly reduced water velocities through the lower Snake River, which has increased the time of exposure of migrating smolts to predation, high water temperatures, and diseases.

Flow augmentation is one means of increasing water velocities and improving migration conditions for juvenile salmon. The Strategy for Salmon called for 427,000 acre-feet of water from the upper Snake River Basin obtained through water market efficiencies and other means. This water was not provided in 1992 because of drought conditions, but was provided in 1993 through the efforts of the Bureau of Reclamation.

The Strategy for Salmon also calls for securing at least 1 million acre-feet of additional water from the Snake River Basin to aid spring and summer salmon migrants. We support the

Council's efforts to secure additional water from the upper Snake River and will work with the action agencies to ensure that flow augmentation from the upper Snake River does not jeopardize molluscs and other listed species in the Snake River Basin. However, because of low runoff conditions that prevail in the Snake River Basin, flow augmentation by itself may not be adequate to create the migration conditions necessary for rebuilding salmon stocks.

The collection and transportation of juvenile salmon and steelhead to below Bonneville Dam by barge or truck is another approach that has been used to attempt to mitigate for the impact of dams and reservoirs, but a recent review identified several areas of uncertainty with regard to the effectiveness of transportation. How transportation affects survival and return of salmon back to their spawning grounds is a major area of uncertainty that is critical to determining the role of transportation in the recovery and rebuilding of salmon stocks.

We support a thorough evaluation of the effectiveness of transportation to increase survival to adult spawning stage as called for by the Council in their Strategy for Salmon. In the interim we urge the Council and the action agencies to work to improve in-river flows, reservoir drawdowns, and project operation to provide for safe in-river migration conditions.

Another strategy for overcoming the effects of the four lower Snake River dams and reservoirs is to lower the reservoirs to decrease the cross-sectional area and volume of the reservoirs to increase water velocities. Unless it is found to be structurally, economically, or biologically infeasible or inconsistent with the Northwest Power Act, the Strategy for Salmon calls for drawing down reservoirs behind the four Lower Snake River dams by April 1995 to increase water velocity during the juvenile fish migration period.

The Fish and Wildlife Service has been participating in the regional efforts to evaluate the drawdown strategy and supports the Council's efforts to aggressively explore this intermediate-term measure, which has high potential for increasing fish survival through the lower Snake River. However, it appears the Council's deadline may not be achieved because of concerns about going forward with a costly temporary gateway smolt removal system at

Lower Granite Dam that has to be in place in order to proceed with drawdown evaluations. Another alternative is to construct a permanent low-level juvenile bypass system by 1997 that would provide for evaluation of reservoir drawdown and the option for operational drawdowns. We will continue to work through the Council's process and with the Federal action agencies to evaluate alternatives and implement drawdown.

The Service believes that the Council's Fish Operations Executive Committee (FOEC), a forum for coordination of mainstem passage matters, has been effective in resolving a number of conflicts. In August 1993, for example, the Corps of Engineers refilled Little Goose and Lower Monumental reservoirs from minimum operating pool without consultation through FOEC. Because significant numbers of listed Snake River fall chinook salmon juveniles were still migrating through the lower Snake River, the Fish and Wildlife Service and Oregon Department of Fish and Wildlife elevated the issue to FOEC for dispute resolution. As a result of the FOEC process and subsequent discussions among the Federal action agencies, the Corps of Engineers agreed to draw the reservoirs back down to minimum operating pool to improve migration conditions for juvenile fall chinook salmon.

We also appreciate and support the Council's efforts to improve operations of hatcheries in the Columbia River Basin. Regionally integrated policies for hatchery operations are being developed through the Council's Integrated Hatchery Operations Team funded by Bonneville. Policy statements and goals have been drafted for fish health, ecological interactions, genetics, hatchery performance standards, and regional hatchery coordination. The members of the Columbia Basin Fish and Wildlife Authority are expected to approve the policy statements and goals at the September meeting. Guidelines for operating the hatcheries under these broad policies are being developed and criteria for evaluating and auditing hatchery operations are nearly complete.

- 2) Is implementation of the Strategy for Salmon on track for timely completion? How well are federal and state agencies coordinating their activities with each other and with the Council to achieve timely implementation?

The fish and wildlife agencies and the Tribes have limited ability to fill gaps created by funding shortfalls. State governments in the region have been hit particularly hard by budget constraints. Also Endangered Species Act listings have created an additional backlog of work for agency staffs. Hence, it is important that Bonneville do its part to adequately fund protection and enhancement of fish and wildlife in the Columbia River Basin.

The State and Federal fish and wildlife agencies and most Tribal organizations participate in the Columbia Basin Fish and Wildlife Authority (CBFWA). CBFWA serves a coordination and information transfer function for its members and as a liaison between the agencies and Tribes, the Council, and Bonneville. These coordination opportunities should be fostered to speed implementation.

Under the circumstances, we believe that the Federal and State agencies are doing a reasonably good job of coordinating activities to achieve timely implementation of the over 100 actions the Council added to the Fish and Wildlife Program through the Strategy for Salmon. In its July 1, 1993, draft Annual Report to Congress, the Council indicated that about 90 percent of the Strategy was being implemented. The Fish and Wildlife Service is committed to work with the Council and other Federal and State agencies, Tribes, and other entities to improve implementation.

- 3) Bonneville asserts that its current financial condition will prevent or delay full implementation of the Council's fish and wildlife program. What measures can Bonneville take to ensure more stable funding for the Council's fish and wildlife programs, given its wide swing in revenues?

Bonneville has established funding reserves that were intended to carry it through swings in revenues. Drought conditions, depressed aluminum prices, repaying the debt from mothballed nuclear power plants, fish protection measures, and pressures to keep rates low have all been identified as factors that have contributed to a substantial reduction in their reserves.

Bonneville's recent rate increase should help alleviate this problem. The establishment of additional mitigation trust funds would help stabilize funding of specific fish and wildlife program activities. For the near term, the Fish and Wildlife Service believes that Bonneville should budget sufficient funds to implement the Council's program.

- 4) What can be done to facilitate water conservation and other changes in regional water management to provide increased flows, for power production and salmon recovery?

We support the measures in the Council's Strategy for Salmon that call for evaluating potential water conservation and water efficiency improvements, potential new storage, storing water above power rule curves, and other changes in operation of the hydrosystem to increase flows for salmon.

NMFS has indicated its intent to have an updated biological opinion for the operation of the Federal Columbia River Power System completed by the end of January 1994. Having the opinion in place prior to the 1994 Pacific Northwest Coordination Agreement data submittal will ensure that hydrosystem operations do not reduce the ability of the system to provide flows for salmon.

- 5) Are existing institutions and institutional arrangements of the state and federal level adequate to implement salmon recovery plans? What improvements should be made to ensure better regional coordination among the many federal, state, tribal and private entities that must work together to achieve salmon restoration? In particular, the following alternatives have been suggested for better implementing salmon restoration plans. Please comment on each:

We need an anticipatory approach to recovering salmon, as opposed to the current species-by-species approach that threatens to overwhelm State, Tribal, and Federal natural resource agencies. Most efforts to better organize governments involved in salmon management have not been broad enough or have lacked adequate accountability to ensure that all Federal agencies pursued coordinated policies in working with State and Tribal governments to restore salmon coastwide.

The Department of Interior, particularly the Fish and Wildlife Service, is working with Federal, State, Tribal, and local governments and the private sector to develop a multi-agency "Pacific Salmon Restoration Initiative." It would provide for a coordinated, watershed-based approach to restore ecosystems and habitats for salmon. This initiative and the continued commitment of the Department of the Interior should help improve coordination and accountability among the agencies implementing recovery efforts in the Columbia River Basin. This effort will also build on renewed interest stimulated by the recent Forest Conference to promote cooperation among agencies in the restoration of watersheds.

- a) Providing additional public involvement in existing federal processes, including review of annual operations;

Fish and wildlife restoration can benefit greatly from an enlightened and involved public. We strongly support additional public involvement in existing Federal processes and review of our annual operations. In Region 1, we currently engage in many diverse and innovative activities to involve and educate the public in our work.

We recently completed a Regional Outreach Strategy that outlines a comprehensive approach to public outreach. One result has been a 30-minute video, produced in cooperation with the National Fish and Wildlife Foundation, that chronicles the life cycles of salmon and steelhead and efforts by Federal, State, and Tribal agencies to restore fish populations in the lower Snake River drainage of Idaho, Oregon, and Washington.

- b) Changing the membership, structure, or authorities of the Council;

The Administration believes it can make the current statutory authorities work. However, if it proves inadequate, we will consider legislative changes.

- c) Incorporating salmon recovery measures into the Pacific Northwest Coordinating Agreement;

The current Pacific Northwest Coordination Agreement (PNCA) contains limited provisions for treatment of fish and wildlife system requirements in operation of the hydropower system, and does not allow non-signatories to submit fish and wildlife requirements to the annual planning process. The Agreement should be modified to enable non-signatories to submit fish and wildlife requirements for annual planning, and broadened to require meeting system fish and wildlife needs. Again, biological opinions should be completed in time for PNCA annual planning.

- d) Adopting a new agreement or creating a new regional entity among BPA, the Corps of Engineers, the Bureau of Reclamation, the Council and other to administer annual river operations;

River operations have clear and dramatic impacts on fish populations and restoration of salmon stocks. At present, fishery agencies and Tribes have forums for advisory input such as commenting on the Strategy for Salmon, the System Operation Review, and the Coordination Act reports on river operations. However, these advisory consultations do not always translate into the prescribed actions that we believe to be necessary.

Given that the Northwest Power Act calls for proper consideration of fish and wildlife in decisions on system operations, and given that the Endangered Species Act calls for protective actions for recovery of listed species, fishery agencies and Tribes must be strong participants in river operational decisions that affect the fishery resources for which they are the primary stewards. We are hopeful that this can occur within the existing statutory framework.

One area where greater fishery agency involvement and authority could be provided is the Pacific Northwest Coordinated Agreement process by which international river operations with Canada and U.S. water management agencies are negotiated. In addition, the NPPC's Fish Operations Executive Committee process could provide the Tribes and fishery agencies a greater voice in river operational decisions. This group has been effective in resolving conflicts related to river operations and fish passage.

Finally, we are reviewing the enforcement provisions of the Northwest Power Act to determine whether they provide Federal water managers with the authority to act in a manner consistent with the Council's program. The Council's responsibilities also should be broadened to encompass other water uses, such as irrigation, in order to balance all water uses with fish and wildlife.

- e) Transferring a lump sum in fish and wildlife funds from BPA to fish and wildlife agencies to be administered separately by those agencies for salmon recovery, while providing accountability for the results of the work funded;

In our experience, the Council and the State and Federal fish and wildlife agencies and Indian tribes currently have little influence over how Bonneville funds are allocated in implementing the Fish and Wildlife Program. However, an implementation planning process (IPP) was negotiated between Bonneville and the fish and wildlife agencies and Tribes and we have recently been informed by the Department of Energy that it has been incorporated into Bonneville's work plans.

We believe Bonneville should evaluate and select projects in a more open, collaborative process as envisioned in the IPP. We also believe that fish and wildlife agencies should have greater control over development of annual implementation work plans and allocation of funding within the broader constraints set by the Council's Fish and Wildlife Program. The Service believes that overhead at Bonneville could be reduced by relying more on the fish and wildlife agencies and Tribes.

- f) Legislatively creating a new entity or designating an existing agency with authority to mandate salmon recovery.

The Fish and Wildlife Service has been working with other Federal agencies, States, and Tribes to identify why past attempts to recover salmon resources in the Columbia River have not been successful. We have not identified a singular cause. I do know, and most of my colleagues agree, that the fragmented management and coordination we now have has not yet

been able to reverse declining stock trends.

We must turn these stocks around. Secretary Babbitt and the rest of the Clinton Administration are fully committed to the restoration of productive salmon stocks. We think we have the authority, flexibility, and will to develop and implement an effective coordinating mechanism without legislation. It will be difficult and require all interests and parties to step away from strident positions of the past. Accordingly, I am confident that we now have the appropriate leadership to chart the course necessary to restore these stocks.

- 6) The Council's program and Bonneville's funding have created the expectation among the tribes that treaty fishing rights will be addressed through increased artificial production. However, NMFS's current discussion of the role of artificial production have stalled construction of new tribal hatcheries. What are you doing to resolve this stalemate and when do you expect to resolve it?

First, there is no disagreement among fisheries agencies and Tribes that hatcheries, as a tool for increasing production, will have limited success unless the basic causes of salmon declines are fixed.

There are presently about 200 million hatchery fish released in the basin, about half of which are released in treaty fishing areas. It is obvious that rearing more hatchery fish alone is not the answer because wild runs are still on the decline and many upriver hatchery operations are marginally successful because of poor survival rates throughout the system. The Service has taken several steps to ensure that hatchery production continues to be an effective part of the formula for salmon restoration and therefore helps ensure treaty fishing rights are preserved. Some of these are:

- a) The Service is working with NMFS to revise and finalize their interim policy on Pacific Salmon and Artificial Production under the Endangered Species Act.

Our goal is to clarify what the appropriate roles for hatcheries will be under recovery programs and preserve captive propagation strategies in recovery efforts when they are appropriate. These roles will be based on appropriate analysis of risks and benefits to listed

and other wild stocks. We have requested that NMFS conduct a cooperative effort to develop clear implementation guidelines to hatchery operations relative to ESA recovery programs for listed stocks of Pacific salmon. The tribes should also participate in that process.

- b) At the request of the Tribes we developed a cooperative strategy with State and Tribal cooperators on hatchery supplementation.

This has been formally recognized by inclusion as "Chapter C" of the Integrated System Plan provided to the NPPC in 1992. Several supplementation projects are already under way in the Snake River basin, northeastern Oregon, and the mid-Columbia river tributaries in Washington state. Others are in various stages of planning and development as guided by the criteria in Chapter C.

The reason some of these projects have slowed down is not due to NMFS' position on the role of artificial production, rather it is the basin-wide concern over ensuring that hatcheries have minimal environmental impacts on native and wild stocks. That is, hatcheries should not add to the problems of stocks listed under the Endangered Species Act or of any wild stocks. Chapter C requires careful analysis of risks and benefits and environmental assessments that do take time to complete before final decisions are made. In Chapter C, we have an agreed-to strategy with the Tribes for making these decisions and are proceeding with this strategy.

- c) The Service and Bonneville are funding a Comprehensive Environmental Assessment of the hatchery operations in the basin that should clarify proper operational procedures and roles of hatcheries.

In the end the Comprehensive Environmental Assessment should facilitate development of future hatchery programs that will increase production potentials while fitting into wild stock and endangered species listed stock protection goals. In addition, proposed Tribal hatchery projects nearing the implementation stage, such as the Yakima/Klickitat enhancement program, are advancing under normal NEPA processes. Section 7 consultation with NMFS

will be necessary before implementation of the projects.

- d) The parties to the U.S. vs. Oregon Columbia River Fish Management Plan are continuing to look for and develop hatchery release strategies to fulfill long-standing obligations for mitigation of fisheries in treaty fishing areas. For example, the Service plans to release an additional 3.5 million fall chinook into upriver treaty fishing areas in 1994.

Thank you again, Mr. Chairman, for the opportunity to present our views to the Task Force. I'll be happy to answer any questions you may have.

STATEMENT OF SHERL L. CHAPMAN

Mr. CHAPMAN. Mr. Chairman, thank you for allowing me to testify today. My name is Sherl Chapman, I am executive director of the Idaho Water Users Association.

We are an organization of irrigation districts and canal companies and as such manage most of the storage water in Idaho and, in some cases, hold water rights to much of that storage.

I will not read my testimony today because, as you pointed out, you have it, you can read it yourself. I would just like to make some comments and highlights along the lines of the issues that have been raised.

We think that the data is relatively clear that the reason that we have major salmon declines in the Snake River basin is because of the four lower Snake River dams that have been installed in that reach of the river. If you look at the graphs of smolt to adult survivor ratios, the other data that are available, it is very clear that with each dam construction and completion, the runs declined even further. It also is fairly clear to us that the water velocity behind those dams has played a major part in the reduction of the salmon runs.

The issue seems to have precipitated or at least condensed down to whether or not we ought to have flow augmentation and to what degree, or whether we ought to have drawdown of those lower Snake River dams, more than just about anything else. And over the past few years, we have seen a move toward flow augmentation as opposed to drawdown other than the one drawdown physical test that we had.

We are very disappointed that the Corps of Engineers and BPA have slipped the time frame for the next test of the drawdown, the biological test, on into 1996. A couple of years ago, we were assured that that test could be done by 1995, and because of that many of us stepped up to the bar at our state legislature and asked them to change our Idaho water law so that we could cooperate in efforts to recovery the salmon and protect the runs while those tests were going on. That legislation is due to sunset the first of 1995, which is going to precipitate a confrontation between the State of Idaho, federal entities and others that are involved in this issue.

It would seem to us that the issue is velocity, and it does not matter whether you are a drawdown proponent or an augmentation proponent, the bottom line is if you run water down, you increase velocity. If you cause drawdown, you increase velocity.

The problem is that we have a wide range of flows that people are suggesting we need from about 85,000 CFS at Lower Granite Dam to as much as 140,000 CFS equivalent. If you look at 1992 hydrologic data, you find that in order to get even to the 85,000 CFS data, you are going to need about 4 million acre-feet of water out of Idaho. We do not have it—we do not have that kind of water without drying up our entire agricultural economy. And we just will not agree to that. If we try to stay with 140,000 CFS, it takes somewhere in the neighborhood of 11 million acre-feet in the 1992 water year. So obviously there is not enough water in Idaho to make augmentation the linchpin of any recovery plan.

At the same time, we have a healthy agricultural economy in north Idaho. They cannot stand a 5 or 6 month drawdown on that

river either. So we have got to work together in order to come up with something that is viable for all of us and that everybody can be made whole and we can still recover the fish. We think that is reasonable and we think it is equitable. We have all shared in the decline of the fish, we ought to all share in the recovery.

In referring to the amount of water that Idaho has contributed, I notice that there is about 10 million acre-feet committed out of the Columbia this past year. The runoff in the Snake River basin is much less of course, about a quarter of that, of the Columbia. But in 1991, we stepped up and we contributed 850,000 acre-feet of water downstream; in 1992, 1,747,000; and in 1993, 1,635,000 to date. Of that, 932,000 acre-feet was shaped by Idaho Power Company out of their Hells Canyon complex. And so we are making a strong effort on a voluntary basis to do our part. But we are disappointed that efforts seem to be becoming stalemated downstream.

Your questions that were in the letter of invitation asked about conservation and where we ought to go with conservation. The average annual runoff out of the Snake River basin in Lewiston is about 36 million acre-feet, and contrary to popular belief, all of the conservation in the world will not increase that flow 1 acre-foot. There will still be 36 million acre-feet of water coming out of the Snake River basin. The only way that you can change that is to take agricultural land out of production and eliminate the use of the water. That is the only way you are going to get an additional acre-foot.

Now there are those that would assume or would suggest that somehow we can initiate major conservation measures throughout the upper Snake River basin and obtain much water. The U.S. Geological Survey data show that there is about 1.1 million acres of flood-irrigated land in Idaho, and the diversion rate for that flood-irrigated land is about 7 acre-feet per acre. The consumptive use of those crops range somewhere in the neighborhood of about 2-2½ acre-feet per acre and you add in some irrigation efficiencies and people will automatically assume that somehow there is 4½ acre-feet of water out there that is somehow magically going to appear if we have conservation throughout the Snake plain. What they ignore is the other Geological Survey data that says that 75 percent of the water diverted returns to the hydrologic system, either as recharge to the ground water system or as return flow to the Snake River. So it is already in the system, it is already going downstream.

The issue of conservation is one that we support on a local and a site-specific basis. Conservation can be used to fine-tune our irrigation community and to provide some additional water, but the kinds of acre-feet or the numbers of acre-feet that are being proposed to be obtained from Idaho are way out of line. Even if that water could be obtained, even if the Power Planning Council could obtain the million acre-feet of water that they hope to obtain somehow in Idaho, the physical constraints of the system eliminate the use of that from any practical use for salmon. For example, the river down to Twin Falls in Idaho, about midway through the State, is full during the time that the salmon need it for their migration. If you put additional water on top of that, you begin flood-

ing towns all along the river. Additionally, Idaho Power Company, which has to shape the water, has a hydraulic capacity of about 30,000 cubic feet per second at Hells Canyon. If you spill that water, you create horrendous gas supersaturation problems as well as other problems in the system.

Additionally, we have a major conflict brewing, and that is the issue of four threatened and endangered snails and a limpet in the Thousand Springs area that would be affected if the recharge to the ground water system were reduced. The flow at Thousand Springs would be reduced because of that reduction in recharge, and we end up with a conflict between NMFS and the Fish & Wildlife Service.

Idaho water users will continue to participate. The irrigators will work voluntarily with the rest of the Northwest region to help recover the salmon, but we cannot accept the fact that many would propose, and that is that water is the answer and somehow we have to ignore the rest of the issues.

Thank you.

Mr. DEFAZIO. Thank you. Mr. Stegner.

[Prepared statement of Mr. Chapman follows:]

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TESTIMONY OF SHERI L. CHAPMAN EXECUTIVE DIRECTOR IDAHO WATER USERS ASSOCIATION, INC. BEFORE THE COMMITTEE ON NATURAL RESOURCES U.S. HOUSE OF REPRESENTATIVES SEPTEMBER 24, 1993

Mr. Chairman:

I want to thank you for the opportunity to present this brief testimony before you today on the important issue of recovery of endangered salmon species in Idaho.

The Idaho Water Users Association, which I represent, is an organization composed of over 180 irrigation districts and canal companies and over 90 agri-businesses, municipalities and other organizations. We are the managers of most of Idaho's storage water and distribute that water to over two million acres of irrigated cropland in our state. As such, we are deeply concerned about water resource issues, particularly salmon recovery, and efforts to utilize Idaho water as a tool in most recovery plans. While Idaho's irrigated agricultural community has always taken the position that it will participate in an equitable and reasonable manner to recover endangered salmon, we expect any recovery plan to be biologically sound, economically feasible and, above all, equitable.

You have asked today that our testimony focus on efforts by the Northwest Power Planning Council and the Strategy for Salmon that they have developed. There are many areas of this plan that others have more expertise on and because of that I will only focus on those areas we feel comfortable about providing you information.

You have asked whether or not the Council's Strategy for Salmon is a sufficient framework for salmon recovery efforts and what strengths and weaknesses occur in the plan. Again, while we are not experts on much of the plan, we do know that the Council's emphasis on flow augmentation and habitat restoration, particularly in Idaho, is a significant weakness since it appears to be based on faulty or little science and takes advantage of the regions politics.

Idaho Department of Fish and Game studies indicate that Idaho's anadromous fish spawning and rearing habitat is in good to excellent condition over 87% of the drainage basin. Only 13% of Idaho's spawning and rearing habitat is classified as in poor condition. Even with this classification in place, the Council's plan chooses to focus in many arenas on habitat restoration and preservation to the detriment of Idaho's agricultural community. While the Council has no specific authority to

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force habitat restoration or to impede grazing on Forest Service and BLM lands, those agencies are using the Council's plan as a tool to restrict the use of federal lands for grazing and to deny special use permits for water diversions under the guise of salmon protection. The Council's plan should refocus it's efforts in areas that will benefit the salmon rather than spending it's time and money to analyze a non-issue.

Weaknesses in the Strategy for Salmon are apparent throughout. To us, however, the basic weakness is the lack of adequate evaluation of existing science. It appears that a significant body of science is available to allow the Council to determine that in-river velocity and lack of passage of smolts downstream is the primary culprit in the decline of the salmon. The Council appears to pick and choose it's scientific bases for the plan and focus on areas of weakest political adversity rather than attacking the problem head on. The Council is vulnerable to regional politics which has lead to inaction in many areas. This inaction has allowed the time frame for drawdown studies and implementation of a drawdown program on the lower Snake River to slip past the point of reasonableness. The drawdown test is of extreme importance to our water users.

Concurrent with the apparent slippage in time frames and lack of commitment by the Council to addressing real problems is the Bonneville Power Administration waffling on funding and commitment to anything significant besides squaw fish bounties and flow augmentation. Certainly the BPA does incur wide swings in revenue available for it's programs, however, given the impact of the federal Columbia River hydropower system on the salmon, this issue should receive a high priority and funds should be dedicated specifically to recovery of salmon each year before using money for other, more discretionary programs. While many of BPA's programs are beneficial to industry, municipalities and irrigators, salmon recovery is a mandate which they cannot escape and given BPA's role in the decline of the salmon, they should be the primary player in funding of recovery plans. There may, in fact, be large swings in BPA revenues but fish and wildlife programs cost less than 4% of BPA's budget. We cannot believe that such a small percentage creates a major revenue problem with the agency.

One of the paramount issues in this debate is the issue of drawdown versus flow augmentation. Idaho interests have long contended, with the support of a great deal of science, that one of the major impacts to salmon has been the installation of the four federal dams on the lower Snake River. It is apparent from nearly every correlative factor that, with the completion of each dam on the lower Snake River, returning salmon have declined more and more. While certainly the lack of downstream passage facilities has contributed significantly to this decline, it is our belief that the reduction in river velocity and the corresponding decline in water particle travel time between the free flowing Snake River below Hells Canyon Dam and the main stem Columbia River has been equally

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damaging. It would appear to us that even the opponents of reservoir drawdown in Washington and Oregon have recognized this fact since they have urged that the river velocity should be increased by using Idaho water. Simple hydrology and basic mathematics will show that unless the four reservoirs on the lower Snake River are drawn down well below minimum operating pool (MOP), all the water in Idaho will not increase the river velocity or decrease the water particle travel time a significant amount nor will it cause the river to even approach the free flowing stream velocity that existed before construction of the dams. Salmon proponents claim we need 140,000 cfs equivalent flow at lower Granite Dam to assist downstream migration. Idaho has eight million acre feet of water in storage in the Snake River Basin but it would require approximately 8-12 million acre feet of water from Idaho with full reservoir pools to create a velocity equal to a 140,000 cubic feet per second necessary. It is obvious, even to the laymen, that flow augmentation is totally inadequate to effectively increase water velocity and decrease water particle travel time to the extent necessary to cause salmon recovery.

Over the last three years, however, Idaho water users have provided water in the spirit of cooperation and in an effort to keep the salmon runs viable. In 1991, 850,000 acre feet of water were sent down river. In 1992, 1,747,000 acre feet and to date in 1993, 1,635,000 acre feet have been sent downriver as shaped water flows. Of this water, 932,000 acre feet was shaped by Idaho Power Company at Brownlee Dam from reservoirs on the upper Snake River system. Accordingly, if the advocates of flow augmentation are correct, we should see some sort of positive biological effect from this effort. We see none. The National Marine Fisheries Service, state fish and game departments and others cannot show any effective increase in salmon returns due to flow augmentation nor are they prepared to assert that flow augmentation has accomplished anything positive. In addition to the water released over the last three years, of course, the Northwest Power Planning Council water budget has been in effect and while those targets have not been met, there has been water shaping and flow augmentation since the mid 80's. Again, there does not appear to be any positive biological benefit since the salmon runs continue to decline. To rely on flow augmentation as a cornerstone of salmon recovery is, at best, faulty science and, at worst, political grandstanding.

The existing Council plan supports flow augmentation in an expanded water budget and in addition proposes to obtain an additional one million acre feet of water from Idaho through conservation and other means. This position demonstrates an absolute ignorance of a hydrologic systems in the Snake River Basin. Often data published by the U.S. Geological Survey are used to claim that Idaho irrigators are using water wastefully. The often quoted 1987 Water Data for Idaho, published by the U.S. Geological Survey, indicated that approximately 1.1 million acres of land was flood irrigated in the Snake River basin using a diversion rate of seven (7) acre feet per

TESTIMONY OF THE IDAHO WATER USERS ASSOCIATION, INC.
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acre gross diversion. It also points out that the consumptive requirement of crops on those lands is approximately 2-1/2 acre feet per acre leaving some 4-1/2 acre feet not consumed by crops. Proponents of taking Idaho water suggest that a significant part of that 4-1/2 acre feet could be used for salmon recovery. They conveniently ignore, however, further data in the U.S. Geological Survey report that states that of the water diverted for flood irrigation in the Snake River Basin, over 75% of that water returns to the hydrologic system either as deep percolation to the ground water system, evaporation to the atmosphere or return flow back to the Snake River. The water that returns back to the Snake River moves on down river, ultimately to the Columbia River and that water is used by the salmon now. The water that percolates to the ground water system travels through the Snake Plain Aquifer and issues in the Thousand Springs reach from Twin Falls to King Hill, Idaho, in the wall of the Snake River canyon and becomes a significant part of the Snake River flow at that point.

Conservation in Idaho will not create water. That water is already reentering the Snake River system. Approximately 36 million acre feet of water is discharged each year at Lewiston in the Snake River. All the conservation methods in the world will not increase the volume of water in the Snake River at Lewiston. The only way that "new" water can be obtained from Idaho to be discharged from our state is by taking irrigated land out of production. Obviously we in Idaho will not stand for that since our largest industry is agriculture.

Even if large quantities of water were obtained from the upper Snake River Basin, the channel configuration of the Snake River through the middle Snake reach is such that flows in excess of 25,000 to 35,000 cfs cannot be exceeded without flooding several towns along the banks of the river. Additionally, once water is brought through the system, it can only be shaped at one point, Brownlee Dam on the Snake River. The hydraulic capacity of the dam is limited to about 30,000 cubic feet per second unless water is spilled. If too much water is released from Brownlee Reservoir, Idaho Power Company cannot follow its summertime load which is the primary source of electrical energy for pump and sprinkler irrigation in the Snake Plain. The facts are that major irrigation conservation on the Snake Plain will not increase the overall water supply, it will decrease the flow issuing from the Snake Plain Aquifer at Thousand Springs and will create major economic displacement without any measurable positive impact on salmon recovery. We believe the proponents of these proposals have separate agendas of developing instream flows in the Snake River for other purposes as opposed to assisting in salmon recovery. Hydrologic calculations show that even with the addition of one million acre feet of water to the system in a 60 day period, velocity through the lower Snake River would be increased less than one percent with full reservoir pools.

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I've gone into detail on this issue because it is a significant part of the salmon strategy adopted by the Council and it is extremely important to Idaho irrigators. We believe that the flow augmentation proposed by the plan and the conservation programs designed to obtain a million acre feet of water from Idaho are merely window dressing and the Council should realize that there is no positive, biologically credible impact attributable to flow augmentation. Efforts at expanding flow augmentation continue with those seeking to obtain water pointing to the Council's plan as the guideline without any recognizable effort to assist in recovery by downstream interests. Salmon harvest has been increased, no jeopardy opinions released, gill netting continues and yet we in Idaho are asked to sacrifice our water and energy as a part of good will. Idaho irrigators, it's citizens and it's Legislature have all stepped up to the bar to work cooperatively with other states and other entities in an effort to recover the salmon. We have even adopted language that set aside statutory provisions against water export for a three year period in an effort to facilitate study and evaluation and cooperation on this effort. We have been continually rebuffed by downstream states and federal agencies and now we see the time line for the next drawdown test slipping past the sunset date for our legislation. We would suggest that this may be being done to precipitate a confrontation between Idaho and the other states, industries and federal agencies in an effort to force the issue to litigation.

The Northwest Power Planning Council has the opportunity to reevaluate the science, reevaluate the programs and hopefully bite the bullet and adopt a plan that will provide positive benefits to anadromous fish while at the same time minimizing impacts to Idaho agriculture, hydropower and resident fish and wildlife. Idaho's irrigators will continue to cooperate if we can be assured that the Council, Congress and agency administrators will also cooperate on an equitable basis in an effort to provide a balanced recovery plan. However, we are becoming disgruntled and disappointed in the Council's efforts and the opposition of those who would suggest that the simple answer is to take Idaho water. That is not acceptable and will only be detrimental to the ultimate recovery of endangered salmon species.

Thank you for the opportunity to testify here today and I wish you well in your endeavors.

Respectfully submitted,



Sheri L. Chapman
Executive Director

SLC:kje

STATEMENT OF JOE STEGNER

Mr. STEGNER. My name is Joe Stegner, and I am from Lewiston, Idaho. I work for a family-owned grain elevator business with locations in northern Idaho and eastern Washington. Our company stores and merchandises locally produced grains and dry peas and we ship those products on river barges to domestic and export buyers throughout the world.

The issue of drawing down the lower Snake River to increase water flow as a major salmon survival effort has numerous negative disadvantages to my area and as the only representative at this hearing from the Lewiston, Idaho/Clarkston, Washington area, I would like to use my allotted time to express my region's perceptions concerning drawdowns.

We perceive the drawdown theory to be a politically motivated, poorly researched, quick fix to the salmon survival effort, which sacrifices our region's economic, recreational and power generation opportunities in an attempt to preserve those same features for other areas. We perceive that the State of Idaho in championing the drawdown theory as the lead point of the Idaho plan, is purposely attempting to sacrifice the lower Snake slackwater river system which runs entirely in the State of Washington in a calculated attempt to limit southern Idaho's contributions to water flow for salmon survival efforts.

We perceive that the drawdown theory was concocted as an inexpensive, quickly implementable cure-all solution for salmon recovery when, in fact, drawdowns will be hugely expensive, costing billions of dollars. Drawdowns cannot be put in practice for many years because of the need for significant research and the extensive dam modifications required, and that drawdowns have dubious scientific benefits which are at best unproven, requiring years of testing and at worst, may cause much more ecological damage than they possibly are worth.

And finally, we perceive that some of the people who adamantly insist that drawdowns are the only best hope for salmon recovery efforts have adopted that position with ambitious agendas other than merely salmon.

We believe that there are those who are using salmon as a platform for preservationist philosophies that include eventually the removal of the Snake and Columbia River dams and the punitive denial of the benefits of those dams to our region.

As a grain barge shipper and a representative of the agricultural community of my area, I have concerns about the increased cost of transportation and the effects that drawdown interruptions will have on our ability to supply the ongoing export marketplace, both of which will surely happen if we lose our river navigation system.

As a consumer of electricity, I do not want increased power bills because of drawdowns.

As a tax-paying citizen of this country, I do not want billions of dollars spent on dam modifications for salmon survival when that money is critically needed for other national problems and when there are obviously more cost-effective methods of increasing salmon numbers to Idaho, such as enhanced smolt transportation systems.

And as a citizen of Lewiston, Idaho/Clarkston, Washington, valley, I much prefer to forego forever the experience of having the rivers and our community reduced to a stinking mudhole such as we experienced during the 1992 test drawdown.

As you are probably aware, plans are now being formulated for an additional test drawdown of just the lower Granite pool of the Snake River lasting up to 4½ months and costing \$40 million. This test could take place as early as 1995, starting in mid-April and lasting well into September. I hope you can appreciate the negative impacts a test like this will have on my region, not just economically but also in the areas of recreation and our social quality of life.

Now some people will say that \$40 million is not much to spend on salmon recovery, but this is only the tip of the iceberg, and as more tests are needed and dam modifications become necessary, the costs are guaranteed to go into the billions if somebody does not stand up and say that drawdowns are a stupid costly idea that this country cannot afford.

The Corps of Engineers and the National Marine Fisheries Service cannot say that because they have to act within the parameters of the Endangered Species Act by pursuing all alternatives. BPA will not say that because it sounds too self-serving. The Northwest Power Planning Council cannot say that because it has to appease Idaho. The Administration cannot say that because they have to appease environmental interests.

Only Congress can say this costs too much, and the money must be put to better use. Congress ought to say it now. Congress should review the evidence from their own federal agencies concerning the scientific benefits and the associated costs of implementing drawdowns and immediately direct funds to areas of salmon recovery that have some assimilation of cost efficiency. The faster Congress acts, the more money this country will save.

I have tried to tell you what I think my friends and neighbors would tell you if they had the opportunity to talk to you. In closing, Mr. Chairman, maybe I should at least mention one of the topics you asked me to address, since I have not exactly done that so far.

You asked if a new entity should be created with authority to mandate salmon recovery actions. In my opinion, there would be no improvement in efficiencies by creating new entities or shifting responsibilities. Congress still would have to make the tough decision about how much money this country can afford to spend on just this one issue. Many people, maybe some here today, have approached this problem as if money is no object and funds are limitless. I do not think that is true. I hope that you do not think that is true. And no matter how you reconstruct the bureaucracy, the buck stops with you.

Thank you.

[Prepared statement of Mr. Stegner follows:]

Presentation to
the Bonneville Power Administration Task Force
of the Committee on Natural Resources
at Boise, Idaho
on September 24, 1993
by Joe Stegner

My name is Joe Stegner and I'm from Lewiston, Idaho. I work for a family owned grain elevator business with locations in northern Idaho and eastern Washington. Our company stores and merchandises locally produced grains and dried peas and we ship those products on river barges to domestic and export buyers throughout the world.

The issue of drawing down the lower Snake river to increase water flow as a major salmon survival effort has numerous negative disadvantages to my area and as the only representative at this hearing from the Lewiston, Idaho,/Clarkston, Washington, area I would like to use my allotted time to express my regions perceptions concerning drawdowns.

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We perceive that the state of Idaho, in championing the drawdown theory as the lead point of the "Idaho Plan", is purposefully attempting to sacrifice the lower Snake river slack water system, which runs entirely in the state of Washington, in a calculated attempt to limit southern Idaho's contribution of water flow for salmon survival efforts.

We perceive that the drawdown theory was concocted as a inexpensive, quickly implementable, cure all solution for salmon recovery when in fact:

...drawdowns will be hugely expensive costing billions of dollars;

...drawdowns cannot be put in practice for many years because of the need for significant research and extensive dam modifications;

...and that drawdowns have dubious scientific benefits which are at best unproven, requiring years of testing and ,at worst, may cause much more ecological damage than they are possibly worth.

And finally, we perceive that some of the people who adamantly insist that drawdowns are the only best hope for salmon recovery efforts have adopted that position with ambitious agendas other than merely salmon. We believe that there are those who are using salmon as a platform for preservationist philosophies that include eventually the removal of the Snake and Columbia river dams and the punitive denial of the benefits of those dams to our region.

As a grain barge shipper and a representative and the of the agricultural community of my area, I have concerns about the increased costs of transportation and the effects that drawdown interruptions will have on our ability to supply the ongoing export market place; both of which will surely happen if we lose our river navigation system. As a consumer of electricity, I don't want increased power bills because of drawdowns. As a tax paying citizen of this country, I do not want billions of dollars spent on dam modifications for salmon survival when that money is critically needed for other national problems and when there are obviously more cost effective methods of increasing salmon numbers to Idaho such as enhanced smolt transportation systems. And, as a citizen of the Lewiston, Idaho,/Clarkston, Washington, valley, I very much prefer to forego forever the experience of having the rivers in our community reduced to stinking mud holes such as we experienced during the 1992 test drawdown.

As you are probably aware, plans are now being formulated for an additional test drawdown for just the Lower Granite pool of the Snake river lasting up to 4 1/2 months and costing 40 million dollars. This test could take place as early as 1995 starting in mid April and lasting well into September. I hope you can appreciate the negative impacts a test like this will have on our region, not just economically, but also in the areas of recreation and our social quality of life.

Now some people will say that 40 million dollars is not that much to spend on salmon recovery, but this is only the tip of the iceberg and as

more test are needed and dam modification becomes necessary, the costs are guaranteed to go into the billions if somebody doesn't stand up and say the that drawdowns are a stupid costly idea that this country cannot afford. The Corp of Engineers and the National Marine Fishery Service can't say it because they have to act within the perimeters of the Endangered Species Act by pursuing all alternatives. BPA won't say it because it sounds too self serving. The Northwest Power Planning Council can't say it because they have to appease Idaho. The administration can't say it because they have to appease environmental interests. Only Congress can say "this costs too much" and the money must be put to better use. Congress ought to say it now. Congress should review the evidence from their own federal agencies concerning the scientific benefits and the associated costs of implementing drawdowns and immediately direct funds to areas of salmon recovery that have some assimilation of cost efficiency. The faster Congress acts, the more money this country will save.

I've tried to tell you what I think my friends and neighbors would tell you if they had this opportunity to talk to you. In closing, Mr. Chairman, maybe I should at least mention one of the topics you asked me to address since I haven't exactly done that so far. You asked if a new entity should be created with authority to mandate salmon recovery actions. In my opinion, there would make no improvement in efficiency by creating new entities or shifting responsibilities. Congress still would have to make the tough decisions about how much money this country can afford to spend on this one issue. Many people, maybe some here today, have approached this problem as if money is no object and funds are limitless. I don't think that's true. I hope you don't think that's true. And no matter how you restructure the bureaucracy, the buck stops with you.

This concludes my remarks.

Mr. DEFazio. Mr. Pedde.

STATEMENT OF KENNETH R. PEDDE

Mr. PEDDE. Mr. Chairman, Mr. LaRocco, I am Ken Pedde, Assistant Regional Director for the Bureau of Reclamation's Pacific Northwest Region. And on behalf of Reclamation, we appreciate the opportunity to be here today.

You have our written statement, and many of the people have talked about issues that we have discussed and have had communication with various parties on. So I will just make three or four points that we feel are important.

First, beginning with the salmon summit, Reclamation has taken the position that in resolving the problems associated with salmon, that all of the users of the river must share in that solution. If there is cost or pain to be borne, we believe those costs and pain should be shared equitably.

Following the salmon summit our counsel took on the task of trying to develop a comprehensive plan to come to some conclusions. We supported the Power Council's plan and continue to do so for three primary reasons.

First, it is, outside of consultation, the only comprehensive plan that addresses what has come to be known as the four Hs: hydro-power, habitat, harvest and hatcheries.

Second, the Power Council as appointed representatives of the Governors, have reflected some of the political will of the region.

And last and not least, in developing its plan, the Power Council held extensive public meetings and heard from all parties regarding their concerns, their proposed solution.

The ESA puts a responsibility on federal agencies to use all of its authorities to recover the species. Our efforts in Reclamation have been focused on that—what we, in Reclamation, can do to help resolve the problem.

We recognize that our actions have caused a lot of concern on the parts of some of the traditional users of the river. Some people also claim we have not done enough. In the language of the law, I guess I would say that we feel at this point our actions have been reasonable and prudent.

And finally, and perhaps a slight digression from the focus of your task force, a concern that Reclamation has is the potential for growing conflicts and an unmanageable situation as we get more and more conflicts between endangered species. Currently of course the sockeye, fall chinook and the spring and summer chinook have been listed. There are petitions for some of the mid-Columbia stocks, the bull trout has been petitioned. We do have eagles already listed. Mr. Chapman mentioned the snails in the middle Snake. All of these present a real management challenge for those of us who are trying to provide water for any number of purposes.

In that area, we have recently entered into an agreement, we are in the process of finalizing it, with National Marine Fisheries Service and the Fish & Wildlife Service, in which we will present a single biological assessment covering all of the species of concern to those agencies. They in turn will coordinate biological opinions back to us. We hope that that will provide us a management tool

where we can avoid some of the future conflicts that we can see among these species.

With that, Mr. Chairman, I would conclude my remarks and be glad to answer questions.

Mr. DEFAZIO. Ms. Garrison.

[Prepared statement of Mr. Pedde and attachments follow:]

STATEMENT
OF
KENNETH R. PEDDE
ASSISTANT REGIONAL DIRECTOR
BUREAU OF RECLAMATION
PACIFIC NORTHWEST REGION

DRAFT

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DRAFT

AT THE
CONGRESSIONAL FIELD HEARING
BEFORE THE
BONNEVILLE POWER ADMINISTRATION TASK FORCE
OF THE
HOUSE COMMITTEE ON NATURAL RESOURCES
REGARDING RECOVERY EFFORTS FOR COLUMBIA RIVER SALMON

BOISE, IDAHO
SEPTEMBER 24, 1993

I am Ken Pedde, Assistant Regional Director for the Bureau of Reclamation's Pacific Northwest Region. Thank you for inviting us to respond to the issues raised in your August 11, 1993, letter announcing this field hearing.

The Department of the Interior, including Reclamation, has supported the Northwest Power Planning Council in its salmon management planning. This includes development of the Council's Strategy for Salmon which we view as an appropriate framework to begin recovery efforts in the Columbia River Basin.

Our support is based on several factors. First, the Council's plan is the only comprehensive plan in existence today. It addresses all aspects of the salmon life cycle including those affected by hydropower, harvest, habitat, and hatcheries. Second, the Council is comprised of representatives appointed by the Governors of the various Northwest States. Therefore, through its plan, the Council is expressing the political will of the region. And last, the Council's strategy was developed in an open, public process that considered input from all of the interests in the region.

Reclamation is awaiting the adoption of a recovery plan for the ESA listed stocks by the National Marine Fisheries Service. It is important that the two recovery strategies do not contain major incompatibilities; trying to resolve major differences in the strategies would make the management of scarce water resources much more difficult.

Reclamation believes that a major strength in the Council's Salmon Strategy is its adaptive management approach. We do not have all of the answers needed to

develop a single long-term plan. The Council's program includes the mandate that mid-course corrections will be made as additional information is obtained on salmon needs and on the effectiveness of various measures. Given the significant uncertainties involved, adaptive management is a sensible approach to addressing salmon management problems.

The Council's program is dependent upon voluntary implementation from a wide variety of Federal agencies, State governments, tribes, local citizens' groups, and others. The Council's authorities are largely limited to the Federal hydropower arena and many of the measures involve programs and entities outside of this arena. To be most effective, the Council's Salmon Strategy must be fully implemented by all involved parties. In addition, the monetary requirements to support salmon recovery measures are likely to increase and securing funding will be a greater challenge in the future.

As to timely implementation of the Council's Salmon Strategy, I can only speak to our own efforts. We are making good progress in planning and implementing the measures designated for major Reclamation involvement.

We have implemented the Council's Columbia River flow augmentation program for the past two years, helping to provide a total of 6.45 million acre-feet of water for Columbia River salmon flows each year. In the Snake River basin, we have participated in flood control shifts when feasible and provided additional water for lower Snake River flow augmentation each of the past three years.

Reports will be completed by the end of this year on our planning for water conservation demonstration projects in Idaho, Oregon, and Washington, and on our appraisal of new storage possibilities in the Snake River basin.

We are working to upgrade fish screen and passage facilities on our diversions on salmon and steelhead streams, and are sharing a biologist with the Idaho Department of Fish and Game to assist them in their high priority screen work in the Salmon River basin.

We are also participating in model watershed efforts in the upper Salmon River basin in Idaho and in the Grande Ronde River basin in Oregon. I have included a recent status report on our salmon recovery efforts with my written testimony.

The Secretary of the Interior and Commissioner Beard are strongly committed to improving Reclamations' water conservation and water management programs, so we are expanding our staffing and funding of those program areas. We have established a water conservation center in our Boise Regional Office to provide technical assistance to water users. We are working with the States to strengthen water measurement programs and to help design water conservation programs. I have also included a status report on our region's water conservation and management efforts with my written testimony.

Water conservation and improved regional water management to provide increased flows for salmon would result in increased hydropower production during periods of juvenile salmon migration. However, this increase occurs at a time

(April through August) when increased hydropower production is not needed in the region because natural flows generally produce a surplus of power in the region. Reserving water during fall and winter for spring and summer release makes it unavailable to produce hydropower during the time of greatest regional power demand. Reclamation is participating in the Systems Operation Review (SOR) that is evaluating the alternatives and tradeoffs involved.

Reclamation believes that with careful planning and cooperation, water made available for recovery of salmon can also provide other instream benefits. For example, improved flows in the Snake River near Thousand Springs could improve water quality and habitat for endangered and threatened snails. Improved instream flows for trout and other fish could also result from careful use of water primarily dedicated for salmon recovery. The conflict between various listed species is one that will seriously challenge the region. As additional species are listed, some with directly competing needs for water, it will become more and more difficult to meet all of the demands placed on the river system. Accordingly, Federal agencies should begin moving toward more comprehensive ecosystem approaches to resource management.

Regarding the adequacy of existing institutions and institutional arrangements, we believe that there has been cooperation among the State and Federal agencies, the Council, and tribal and local interests. While the involved parties do not always agree on every issue, the willingness of everyone involved to work together on issues related to the recovery of salmon is apparent by the activities in which all the parties have been involved.

Although regional coordination among Federal, State, tribal, and private entities has improved, we know that more needs to be done.

Reclamation, the Corps of Engineers, Bonneville Power Administration (BPA), and others have been discussing alternative institutional processes related to river operations (related to alternatives a and d in your August 11 letter) as part of our System Operation Review. A concept called "the Forum" is presently being developed and a draft describing alternative arrangements will soon be available. The alternatives range from: keeping the existing structure; creating a single new operating entity; or expanding the existing structure to include the National Marine Fisheries Service, Fish and Wildlife Service and tribal representatives. The Federal SOR participants recognize having all the involved interests at the discussions is an important aspect of improving coordination. In each alternative, public involvement would be a very critical and important function.

In relation to the Pacific Northwest Coordination Agreement (your alternative c), the existing agreement recognizes that operations for non-power uses have top priority, regardless of impacts on power production. It also protects the various parties from any penalties for requiring operations for nonpower purposes. Existing salmon recovery measures are presently incorporated into the agreement's annual planning study, when known, and the PNCA parties then determine how to coordinate the power production resulting from system operational changes associated with additional recovery measures. Departures from the coordination plan can be made to provide additional water for salmon. For example, Reclamation operated Grand Coulee and the Corps

operated Dworshak Dam to provide water for salmon in 1993. Operational requirements for salmon are established from the Council's program and through the ESA consultation process, not in the PNCA arena.

In relation to the other alternatives mentioned in your letter, any changes in the Power Planning Council (alternative b) should be made by the Governors and other political leaders in the region. With respect to Alternative 4f, no matter which agency or group of agencies or forum is given the authority, it is important to ensure actions meet not only our environmental and economic needs, but also our Indian trust and treaty responsibilities.

That concludes my testimony. I will be glad to answer any questions you may have.

BUREAU OF RECLAMATION
STATUS REPORT
SALMON PROGRAM IMPLEMENTATION
JULY - AUGUST, 1993

The Northwest Power Planning Council (Council) has amended the Columbia River Basin Fish and Wildlife Program to provide a comprehensive management framework to aid the recovery of weak stocks of salmon. The plan is documented in Columbia River Basin Fish and Wildlife Program - Strategy for Salmon, 2 Volumes, October 1992. Reclamation has a role in the implementation of several of the measures. This report provides a bimonthly update on the status of measures involving Reclamation. Questions can be directed to Fred Crase (208) 378-5086.

SPECIAL NOTES:

1. On August 16, 1993, the Sierra Club Legal Defense Fund, Inc., issued a 60-day Notice of Intent to Sue on behalf of several environmental organizations for alleged violations of the Endangered Species Act related to operation of the Federal Columbia River Power System (FCRPS) in 1993.

Section 3--Juvenile Salmon Migration

3.2
(Page 25)

Establishes a Fish Operations Executive Committee (FOEC) to annually develop an operating plan for the upcoming year (Plan due 3/31 each year) (Council lead).

Background: Reclamation has participated in meetings of FOEC since February 1992 to review proposed fish passage operations and to resolve outstanding issues. Most of the outstanding issues during 1992 were associated with development of the annual Coordinated Plan of Operations. Agreement was reached on separate Spring and Summer/Fall Coordinated Plans and 1992 operations were carried out accordingly. A draft Coordinated Plan was completed for 1993, but agreement could not be reached on a final plan. The issue became moot when the National Marine Fisheries Service (NMFS) issued its biological opinion on 1993 operations of the FCRPS. The biological opinion established flow targets for the lower Snake and lower Columbia Rivers of (1) 85 KCFS (thousand cubic feet per second) from April 10 - June 20 and 50 KCFS from June 21 - July 31 at Lower Granite Dam, and (2) 200 KCFS from April 20 - June 30 and 160 KCFS from July 1-31 at McNary Dam. The opinion also established an inseason management process wherein the Corps of Engineers (Corps), Bonneville Power Administration (BPA), NMFS, and Reclamation will review flow forecasts, available water supplies, and status of salmon migration on a weekly basis to determine if additional measures are needed to improve fish survival.

Recent Activity: The action agencies operated the FCRPS in accordance with NMFS's biological opinion and met the established flow targets. On August 3, 1993, NMFS requested additional flow augmentation during early August, because the outmigration of fall chinook smolts from the Clearwater River was running later than originally anticipated. FOEC members held several meetings and conference calls to identify additional sources of water and to resolve issues. Additional flow augmentation was provided in the lower Snake River

until August 24, when all of the water supplies that could be identified for flow augmentation in 1993 became exhausted.

Contact: Ken Pedde

3.3.A.2.8 (page 26)	Shift system flood control space from Dworshak to other Columbia Basin projects [Corps of Engineers (Corps) lead].
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Background: In 1991, Reclamation cooperated with the Corps to shift 400,000 acre-feet of system flood control responsibility from Dworshak to Grand Coulee. A similar shift was not needed in 1992 or 1993 due to below normal runoff conditions in portions of the Columbia Basin.

Recent Activity: No further activity is anticipated for this measure until February 1994 when the initial 1994 runoff forecasts are formulated.

Contact: Dan Yribar

3.3.A.3 (page 27)	Reclamation provide 90,000 acre-feet of uncontracted water for spring migrants (Reclamation lead).
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Background: In 1991, Reclamation provided about 40,000 acre-feet of uncontracted water as part of 200,000 acre-feet of water that was rented from the Payette and upper Snake River rental pools and used for salmon flow augmentation. In 1992, Reclamation reached agreement with the various involved entities to provide 90,000 acre-feet of uncontracted water for summer migrants. Idaho Power Company (Idaho Power) released the water from Brownlee Reservoir in July and Reclamation backfilled Brownlee from Cascade and Deadwood Reservoirs during winter.

Recent Activity: Reclamation has arranged to provide 338,000 acre-feet of uncontracted water for lower Snake River flow augmentation in 1993. Sources for this water include (1) 98,500 acre-feet of uncontracted space from Cascade, Deadwood, Anderson Ranch, and Ririe Reservoirs, (2) 99,500 acre-feet of presently uncontracted space (but committed to irrigators as part of the Shoshone-Bannock Water Rights Settlement) from Palisades and Ririe Reservoirs, and (3) 140,000 acre-feet of power head space from Palisades, Minidoka, and Anderson Ranch Reservoirs. Idaho Power released the water from Brownlee Reservoir in June, July, and August, and Reclamation released most of the water from the upstream reservoirs during July and August to backfill Brownlee (except for 120,000 acre-feet which will be released during winter).

Contacts: Rich Rigby, Jerry Gregg, Dan Yribar, Fred Crase

3.3.A.4 (page 27)	Reclamation provide one-half of 100,000 acre-feet of water for spring migrants from Snake River basin when forecasted runoff at Lower Granite is less than 29 million acre-feet (MAF) (Reclamation co-lead).
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Background: The main activity associated with this measure during 1991 and 1992 was to monitor the Idaho rental pools to determine if any water was available to be purchased for lower Snake River flow augmentation. In 1991,

Reclamation cooperated in the purchase and release of 100,000 acre-feet of water from the Payette River rental pool and 100,000 acre-feet from the upper Snake River rental pool. In 1992, due to the severe drought conditions in southern Idaho, no water was assigned to the various rental pools that could be used for salmon flow augmentation.

Recent Activity: Reclamation provided 338,000 acre-feet of water from the Snake River basin for lower Snake River flow augmentation in 1993 (see discussion under measure 3.3.A.4). BPA purchased another 100,000 acre-feet of water from the Idaho rental pools (35,000 from the Payette basin and 65,000 from the upper Snake River basin). Almost all of this water was used in July and August because (1) natural runoff exceeded flow requirements at Lower Granite Dam for much of the spring and (2) abnormally cool temperatures over much of the Pacific Northwest eliminated the need for flow augmentation to reduce water temperatures in September.

Contacts: Fred Crase, Rich Rigby

3.3.A.7 (page 27)	Shift system flood control space from Brownlee to other Columbia Basin projects (Corps lead).
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Background: Due to the much below normal runoff in 1991 and 1992, no system flood control space was assigned to Brownlee. However, Reclamation cooperated with the Corps and Idaho Power to shift 50,000 acre-feet of system flood control space from Brownlee to Grand Coulee in 1993.

Recent Activity: No further activity is anticipated for this measure until February 1994 when the initial 1994 runoff forecasts are formulated.

Contact: Dan Yribar

3.3.A.8 (page 27)	Establish a Snake River Anadromous Fish Water Management Office (Reclamation co-lead).
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Background: An Idaho Water Rental Policy Group was formed in 1991 to conduct a 3-year study of the feasibility of renting water from Idaho rental pools for lower Snake River flow augmentation. The group consists of representatives from Reclamation, Idaho Department of Water Resources (IDWR), Idaho Department of Fish and Game (IDFG), BPA, Nez Perce and Shoshone-Bannock Tribes, irrigators, and Idaho Power; this group coordinated the purchase and release of 200,000 acre-feet of flow augmentation water in 1991 and attempted to rent additional water in 1992. The group has been renamed the Snake River Anadromous Fish Water Management Committee and continues to pursue rental and coordination of water from above Brownlee for lower Snake River flow augmentation. IDFG has assumed the lead role in organizing and coordinating committee activities. During 1993, the committee coordinated the release of the 438,000 acre-feet of middle and upper Snake River water used for flow augmentation and coordinated the purchase of the 100,000 acre-feet of Idaho rental pool water included in that total.

Recent Activity: No further activity is anticipated for this measure until early 1994 when flow augmentation planning activities begin.

Contact: Fred Crase, Rich Rigby

3.3.B.7 (page 28)	Reclamation provide one-half of 137,000 acre-feet of water to refill Brownlee Reservoir in August and one-half of 100,000 acre-feet of water to reduce September water temperatures (Reclamation co-lead).
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See above discussion related to measures 3.3.A.4 and 3.3.A.8.

Contacts: Dan Yribar, Fred Crase, Rich Rigby

3.4.A.2 (page 28)	When the April runoff forecast for The Dalles is less than 90 MAF, store up to 3 MAF of additional water by April 30 for Columbia River flow augmentation (Reclamation co-lead).
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Coordinated Plan of Operations

Background: In 1992, Reclamation, the Corps, and BPA cooperated to store an additional 3 MAF of water for Columbia River flow augmentation bringing the total water budget for the Columbia River for 1992 to 6.45 MAF. All involved parties agreed to Spring and Summer/Fall Coordinated Plans of Operation to improve flow conditions for salmon, and the agreed upon operations were carried out until the flow augmentation season ended on July 31.

Recent Activity: In 1993, Reclamation, the Corps, and BPA again cooperated to store an additional 3 MAF of water for Columbia River flow augmentation for a total 1993 Columbia River water budget of 6.45 MAF. Work was completed on a draft 1993 Coordinated Plan of Operations, but the involved parties could not reach an agreement on a final plan. Flow augmentation operations began on April 10 in accordance with the draft Coordinated Plan plus additional measures agreed to with NMFS and included in the May 26 biological opinion. Flow augmentation operations for the Columbia River were concluded on July 31 and the flow targets included in the biological opinion were provided throughout the flow augmentation season.

Contact: Dan Yribar

System Operation Review (SOR)

Background: The SOR is a joint study involving Reclamation, the Corps, and BPA to produce the environmental analysis required to consider changes in the operation of the Federal Columbia River Power System. The changes being considered include development of a multipurpose operating strategy for the river system and renegotiation and renewal of the Pacific Northwest Coordination Agreement (PNCA) and other agreements related to the Columbia River Treaty between the United States and Canada.

Recent Activity: An additional System Operating Strategy with two options has been added to the detailed analysis for the draft EIS, bringing the total number of system strategies to seven, and the total number operating options to 19. The new options being analyzed include one regarding target flows in the lower Snake and lower Columbia Rivers suggested during ESA consultations with NMFS and another option proposed by the Fish and Wildlife Service. The technical work groups are presently analyzing the 19 operating options and preparing draft technical appendixes detailing the effects of the options in

their resource area. The draft technical appendixes are now scheduled for completion by early October.

Environmental Impact Statements (EIS)

In 1992, the Corps, BPA, and Reclamation cooperated in the preparation of a Columbia River Salmon Flow Measures Options Analysis/EIS. In 1993, the agencies cooperated in the preparation of a Supplemental EIS on Interim Flow Improvement Measures for Salmon (interim measures between 1992 and the development of a long-term operational strategy through the SOR). The biological opinions issued by NMFS and the Records of Decision issued by the agencies for 1992 and 1993 were based on the analyses and biological assessments included in these EIS efforts.

Recent Activity: No activity to report for July - August.

Pacific Northwest Coordinating Agreement (PNCA)

Background: The PNCA is a contract which expires in 2003, between Federal project operators and other public and private power utilities of the Pacific Northwest. The PNCA established an annual planning process, which must meet all of the authorized purposes of the Columbia River hydropower projects. It must also recognize project and system requirements that are frequently changing to meet multiple uses. All PNCA parties coordinate operations of their projects to meet system requirements.

Recent Activity: The PNCA parties have reached agreement on the 1993-94 Operating Procedures. These procedures include a method to address parties' rights and obligations to energy as a result of operations for anadromous fish. The procedures are intended to make PNCA transactions reflect actual reservoir operations; they do not determine reservoir operations.

Contacts: Dan Yribar (Coordinated Plans), John Dooley (SOR), Ron McKown (EIS), Jim Fodrea (PNCA)

3.3.A.6 (page 30)	When flow augmentation measures are in effect, Columbia River flows on weekends and holidays should not be less than 80 percent of the 5 preceding week-day average (Reclamation co-lead).
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Background: This measure was included in Columbia River flow operations during both 1992 and 1993.

Recent Activity: The measure was included in Columbia River operations until July 31, when flow augmentation operations from the Columbia River ended. No further activity is anticipated until April 1994 when the 1994 flow augmentation season begins.

Contact: Dan Yribar

3.5.A.2 (page 32)	Establishes committee to coordinate analyses related to Snake River reservoir drawdowns (Interim report due 11/1/92; final report due 11/1/93) (Council lead).
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SNAKE RIVER RESERVOIR DRAWDOWN COMMITTEE (SRRDC)

Background: Reclamation is participating in meetings of the SRRDC. A contractor has been selected (Harza Engineering) to assist the committee in overseeing development of the drawdown plans and reviewing existing information related to drawdown. The committee is presently reviewing material being developed by the Corps in their System Configuration Study (SCS).

Recent Activity: The SRRDC met August 10 to discuss the Corps' SCS study, a proposed biological drawdown test for the lower Snake River, drawdown of John Day Reservoir, and Reclamation's storage appraisal study. The Corps' schedule for completion of the Phase I report for their SCS study has slipped about 6 months to March 1994. The Corps and NMFS are preparing a draft EIS on a proposed biological test involving a 43-foot drawdown of Lower Granite Reservoir. The draft EIS should be completed by November 1993. Drawdown of John Day Reservoir to minimum operating pool would achieve decreased water particle travel times of 0.4 to 1.8 days; to achieve similar results from flow augmentation would require as much as 4.5 MAF of additional water. Reclamation's storage appraisal study is on schedule (see measure 3.6.B.1).

SYSTEM CONFIGURATION STUDY TECHNICAL ADVISORY GROUP (SCSTAG)

Background: Reclamation is participating on the SCSTAG which was established by the Corps to assist them in the formulation and evaluation of system modification and drawdown alternatives being considered in their SCS. Alternatives to be evaluated range from reservoir drawdowns and system improvements to new upstream storage, an upstream collection facility, and a migratory canal.

Recent Activity: SCSTAG did not meet during July or August. The Corps is presently re-evaluating system and drawdown alternatives in consideration of comments received on the Interim Status Report and has started preparation of a draft Phase I report on the SCS study. The draft Phase I report should be completed by March 1994.

Contacts: Ron McKown (SRRDC), Dan Yribar (SCSTAG)

3.3.A.3 (page 33)	Implement measures to allow irrigation at lower reservoir levels at John Day Reservoir (Report due 11/1/92) (Corps lead).
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Background: Reclamation is participating with the Corps, BPA, and local interests in a study of potential measures to allow operation of John Day Reservoir at minimum operating pool without adversely impacting existing irrigators. Measures being studied include: (1) modification and possible relocation of existing pumping stations, and (2) construction of canals along each side of the reservoir. Reclamation's role in the study will be to provide technical review of the layout, design, and cost estimates of the pump station modifications and canal alternatives. The Corps has contracted with a

consultant to conduct the predesign work. Reclamation will provide a technical review of the consultant's report, but the Corps has yet to provide any material for review.

Recent Activity: No activity to report for July - August for this measure.

Contact: Dennis Hudson

3.6.B.1 (page 33)	Conduct a cooperative appraisal study of new storage potentials in the Snake River basin (Report due 12/31/93) (Reclamation lead).
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Background: This work was initiated in late 1991 with the formation of an advisory group with representatives from water user organizations, fish and wildlife experts, and State and Federal agencies. The group inventoried and mapped over 400 potential storage sites above Lower Granite Reservoir. The master site list was evaluated by the advisory group in July 1992 and 12 "storage areas" (some areas have more than one damsite) were selected to receive further evaluations as to potential water supplies. In January 1993, the advisory group further narrowed the list to 11 sites for the development of appraisal level information on costs, system operation, geologic, and other factors.

Recent Activity: The technical work group has been developing technical information for use in preparation of the damsite report. The current schedule calls for a draft report to be completed in September and a final report completed by November or December.

Contact: Ron Golus

3.6.C.1 (page 33)	Organize a water advisory committee to recommend options to secure 1 MAF of additional water from the Snake River basin (Report due 12/31/93) (IDWR lead).
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Background: Reclamation participated with the States of Idaho and Oregon, BPA, the Council, and others to form the Snake River Basin Water Committee which began work in August 1992. The committee has reviewed ongoing activities in the Snake River basin related to the measure and prepared a work plan which was approved by the Council and State water managers in November 1992. The committee is presently working with BPA to contract with an independent consultant to identify methods, sources, costs, and effects of obtaining 1 MAF of water from the upper Snake River basin by 1996.

Recent Activity: The committee recommended an independent consultant to the State water managers in late June and they made a final selection. A contract with the consultant has yet to be finalized. The committee will meet with the consultant as soon as the contracting process is completed.

Contact: Fred Crase

3.6.C.4 (page 34)	Evaluate the potential for water conservation in Reclamation programs (Reclamation co-lead).
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Background: Reclamation has established a Regional Water Conservation Center at its Boise Regional Office. The center will be a focal point for coordination of the various water conservation activities underway throughout the region. A report summarizing ongoing water conservation activities in the PN Region was prepared and sent to the Council in June 1992, and an updated status report was sent to the Council in January 1993.

Recent Activity: An updated status report on the PN Region's water conservation activities was completed and mailed to the Council in July. Substantial progress has been made on several water conservation initiatives since the last report in January. Reclamation has initiated an analysis of potential water savings for several irrigation districts in Oregon and is developing a hydrologic planning model for the upper Deschutes River to analyze the effectiveness of potential conservation measures. Several additions to the AgriMet program have been completed, including the addition of solar radiation monitoring equipment at four stations to assist in the evaluation of opportunities for electrical generation from solar powered photovoltaic cells. A technical assistance project is underway with the Lake Chelan Reclamation District, and we are continuing to develop criteria for Reclamation Reform Act water conservation planning.

Contact: Allen Powers.

3.6.C.5 (page 34)	Fund a review of the current water supply forecasting system (Reclamation co-lead).
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Background: This measure is being implemented by the Forecasting Committee of the Columbia River Water Management Group. The committee submitted a draft report to the Council in February 1993 that (1) summarized the state of the current forecasting effort in the Pacific Northwest, (2) identified potential areas of improvement, and (3) recommended future short- and long-term actions for the forecasting agencies to implement. The Council has completed its review of the draft report and the committee has started preparation of a final report.

Recent Activity: The committee met August 12 to continue preparation of the final report. A work group has been established to formulate a case study in the Clearwater basin to determine the advantages and disadvantages of several different forecasting techniques. The committee will brief the Council on October 26 or 27 on the status of their work.

Contact: Dan Yribar

3.6.D.1 (page 34)	Evaluate changes in power system operations that could increase flows for salmon and steelhead, or offset the cost of improving flows (Reclamation co-lead).
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Background: This measure is being implemented by the SOR Interagency Team. The team has established a public process that is presently identifying and evaluating alternative operations and institutional processes related to the

Federal Columbia River Power System that could increase flows for salmon and steelhead.

Recent Activity: See discussion of recent SOR activity under measure 3.4.A.2.

Contact: John Dooley

3.6.E.1 (page 34)	Re-examine all Columbia River Basin flood control strategies and rules to identify modifications that will yield more useful or shapeable flows for fish (Report due 12/31/93) (Corps lead).
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Background: This measure is being implemented by the SOR's Flood Control Work Group. The group is on schedule with the rest of the SOR and has developed technical methods for a detailed evaluation of the effects of different operational alternatives on the flood control objectives for the Columbia River Basin reservoirs.

Recent Activity: The work group is presently conducting a detailed analysis of the 19 operating options and resultant effects on Columbia basin flood control requirements. Work has been completed on a preliminary draft of the technical appendix; the draft appendix should be completed by early October.

Contact: Dan Yribar

3.6.F.11 (page 35)	Identify the impacts of flow operations for salmon and steelhead on resident fish and wildlife; include impacts on recreation (Reclamation co-lead).
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Background: This measure is being implemented by the Resident Fish Work Group of the SOR. The work group is on track with the rest of the SOR and has developed analytical methods and criteria for the full-scale analysis of candidate strategies.

Recent Activity: The Resident Fish Work Group is presently analyzing the effects of the 19 operating options on resident fish resources and expects to finish a draft technical appendix detailing the results of the analysis by early October.

Contact: Pat Mangan (D-5522)

Section 6--Coordinated Salmon Production and Habitat

6.5.B.2 (page 72)	Establishes a "model watershed" program to undertake comprehensive watershed enhancement projects in Idaho, Oregon, and Washington to protect and enhance salmon habitat (State lead).
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Idaho

Background: Three subbasins in the upper Salmon River basin (Lemhi, Pahsimeroi, and East Fork) have been selected as Idaho's watershed project. The Idaho Soil Conservation Commission has been designated as the lead agency

to coordinate and facilitate development of a Model Watershed Plan, and Ralph Swift of the Soil Conservation Service has been appointed as project coordinator. Reclamation's Lemhi River Water Conservation Demonstration Project will be included as an element in the overall watershed plan. Also, Reclamation has agreed to conduct engineering feasibility studies of consolidating some diversions on the Lemhi River.

Recent Activity: The Lemhi-Pahsimeroi-East Fork Model Watershed/Idaho Screen Technical Work Group (TWG) met in Salmon on August 19. The group received updates on the various programs underway under the umbrella of the Model Watershed program including the Lemhi River Water Conservation Demonstration Project, fish screening program, diversion consolidation program, and various agency programs. An opportunity recently identified was to construct 3 pump diversions to replace 4 gravity diversions. This would reduce screening costs and eliminate the need for diversion berms in the affected streams. The group concluded that more discussion needs to occur on funding and cost-sharing issues associated with the various programs.

Oregon

Background: The Grande Ronde basin has been selected as Oregon's watershed project. Reclamation's ongoing water optimization study and water conservation demonstration project will likely be included as elements in the overall watershed project. The Union and Wallowa County Commissions have formally appointed a Board of Directors for the Grande Ronde Basin Model Watershed Program (GRMWP). The board has developed an organizational structure and selected an executive director. A group has been formed in Wallowa County to develop a salmon recovery strategy for the Wallowa and Imnaha basins.

Recent Activity: The Board of directors met in Elgin on July 14 and in Enterprise on August 23. The GRMWP Board is in the process of developing MOU's with natural resource agencies and organizations in the basin and is selecting a technical committee to review project proposals and make recommendations to the Board for implementation. The GRMWP is also conducting a basin-wide habitat assessment with funding from BPA and Reclamation to identify critical salmon and steelhead spawning and rearing areas for restoration activities. Work has started on the development of a "priority list" of near-term actions that could be taken to begin the restoration effort.

Contacts: Dave Duncan (OR), Ron Golus (ID)

6.6.B.2 (page 74)	Improve enforcement of existing water rights and duties for water diversions; ensure that existing and new diversions are equipped with devices to measure instantaneous and seasonal flows (Reclamation co-lead).
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Background: Reclamation and OWRD have worked with irrigation districts in the Umatilla River basin to institute water rights and diversion monitoring and enforcement improvements. Also, Reclamation, IDWR, and local water users have established a water district and a water use accounting system for the Payette River basin. Reclamation is working with the Frenchtown Irrigation District in western Montana and the Aberdeen-Springfield Canal Company in

southeastern Idaho to cost-share in the installation of improved diversion measurement devices. Reclamation will be reviewing, with the appropriate State, other project areas for application of similar improvement programs.

Recent Activity: No activity to report for July - August for this measure.

Contacts: Rich Rigby (Umatilla), Jerry Gregg (Payette), Allen Powers (Measurement Program)

6.6.B.7 (page 74)	Initiate cooperative water conservation demonstration projects in Idaho, Oregon, and Washington (Reports due 12/31/93) (Reclamation lead).
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Idaho

Background: The Idaho tributary project is on the Lemhi River, a tributary of the Salmon River. Reclamation is working with local irrigators, Shoshone-Bannock Tribes, IDFG, IDWR, and other Federal and State agencies to develop a plan for improving fish passage, water control, water conservation, and fish habitat in a 3 mile critical fish passage reach of the lower Lemhi River.

Recent Activity: A formal operating plan to be used to manage flushing flows for salmon in the Lemhi River is being circulated for signatures. Preliminary designs for the five proposed permanent diversion dams, including associated headgates, fish screens, and fish ladders, have been completed and were given to the local steering group and fishery agencies for review. A TWG meeting will be held in Boise on September 22 and 23 to finalize the designs.

Oregon

Background: Reclamation is working with the Soil Conservation Service, OWRD, local water users, and others to identify a locally-supported conservation effort in the headwaters of the Wallowa River in the Grande Ronde basin. Reclamation is also looking at potential opportunities to make irrigation system and water management improvements in the John Day basin.

Recent Activity: Good progress has been made on formulating the Oregon demonstration project. Although not yet finalized, the demonstration would consist of the following activities:

John Day Basin

Cathedral Ditch -- consolidate 3 diversions into 1, infiltration gallery to replace diversion berms, onfarm gated-pipe application

Ditch Consolidation -- consolidate 4 diversions into 1 (this action would eliminate 2 fish screens)

Luce-Long Diversion -- construct permanent diversion dam with ladder to replace rock berm diversion

Onfarm gated-pipe demonstration

Wallowa Basin

Lower Valley Ditch -- consolidate 4 rock berm diversions into 1 permanent diversion (with associated screen and ladder)

Clearwater Ditch -- canal lining in chronic leakage area, gated pipe onfarm application, return flow capture and reuse system, and permanent diversion dam to replace rock berm diversion

In both basins, agreements are being drawn up with counties and local soil conservation districts to do surveys, preliminary designs, etc.

Washington

Background: In Washington, the demonstration project is being initiated in the Yakima basin. The project has two primary goals: (1) to improve operational capability to maintain a specified target flow over Sunnyside Diversion Dam, and (2) to have water available to react to critical streamflow situations. An advisory committee of irrigation, tribal, State, and Federal representatives has been formed. The group has identified potentials related to a low-elevation reregulating reservoir to control flow fluctuations at Sunnyside Dam and a water leasing program to provide additional streamflow when needed.

Recent Activity: Preliminary designs for the reregulating reservoir are nearing completion and should be ready for review by the Yakima Indian Nation and water users in September. A leasing program for the basin should be finalized this fall. The program is being developed by the Environmental Defense Fund under contract with the Washington State Water Users Association.

Flow Augmentation

Background: The North Side Canal Company of Jerome, Idaho, was selected for the Snake River flow augmentation demonstration project. The proposed project would consist of applying three conservation techniques (reregulating reservoirs, automated gates, and canal lining) on parts of the canal company's distribution system.

Recent Activity: Our Denver office is putting together a conceptual plan for adding reregulating capability to the lower portion of the canal company's service area. Preliminary designs and costs should be available by late September. A preliminary draft of the Environmental Report for the project has been completed under contract with Science Applications International Corporation.

Contact: Onni Perala

6.6.B.9 (page 75)	Establish a mechanism to coordinate water quality activities relating to Columbia River Basin fish and wildlife resources (EPA lead).
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Background: The measure is being implemented by the Water Quality Committee of the Columbia River Water Management Group. The committee has expanded its membership to include all appropriate State and Federal agencies, and tribal representatives, and has initiated coordination of water quality activities.

Recent Activity: No activity to report for July - August for this measure. The next meeting of the Water Quality Committee will be in September.

Contact: Dave Zimmer

6.6.B.10 (page 75)	Coordinate development of a study plan to compile and evaluate existing water quality information, data gaps, and priority problems (EPA lead).
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Background: This measure is also being implemented by the Water Quality Committee of the Columbia River Water Management Group. A letter report on development of the study plan was submitted to the Council by EPA in April.

Recent Activity: Subcommittees led by the States of Idaho, Oregon, and Washington (in coordination with Montana) have begun formulating study plans for their States. Funding has been a problem and EPA is seeking Federal funds for completion of the study plans. The State subcommittees are expected to report back to the full Water Quality Committee in September.

Contact: Dave Zimmer

6.6.B.13 (page 75)	Develop a regional assessment of the availability of water for salmon and steelhead spawning, incubation, rearing, and migration in the Columbia River and its tributaries (Council lead).
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Background: Reclamation participated in meetings with the State water agencies, BPA, and the Council to discuss development of a draft work plan for conducting a regional assessment of water availability. Council staff have been looking at existing hydrological information to determine what additional information may be needed. Also, the various States are looking at what information they may have to fill in some of the gaps. Additional meetings to discuss the adequacy of the existing data base will be scheduled in the near future.

Recent Activity: No activity to report for July - August for this measure.

Contact: Fred Crase

6.6.B.17 (page 76)	Begin consultations to develop a storage agreement to ensure minimum flows below Willamette River projects (Corps lead).
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Background: This is a new measure in the Council's Program. Reclamation will coordinate with the Council and the Corps to determine our role in the implementation of this measure.

Recent Activity: No activity to report for July - August for this measure.

Contact: Ron Golus

6.6.C.3 (page 77)	Establishes Fish Screening Oversight Committee and Technical Work Groups (TWG) to establish and implement a screening program (NMFS lead).
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Background: Reclamation has been participating on the Fish Screen Oversight Committee (FSOC) which has developed criteria for prioritizing screen construction, a list of high priority screens for design and construction, and a process for completing an inventory of long-term screening needs throughout the Columbia River Basin. Reclamation biologist, Chuck Keller, has been assigned to IDFG in Salmon, Idaho, under an Interagency Personnel Act agreement to assist the State in its screening program. Regional office personnel have been participating on the Idaho Screen TWG to provide input on facility designs.

Recent Activity: The FSOC met in Salmon on August 18. Discussions centered on developing a list of high priority screens for construction in 1994, conducting pump intake surveys in the Columbia and Snake River basins, and conducting a fish passage workshop in Salmon in March 1994. Under IDFG's program, construction of the new screen shop in Salmon continues; completion is scheduled for October. Also, topographical and water use surveys are being conducted on 40 sites scheduled for new screens, conversion to pump intakes, consolidation, and/or new headgates during fall 1993 and in 1994. A Model Watershed/Screen TWG meeting was held in Salmon on August 19 (see discussion under measure 6.5.B.2 for details of the meeting).

Contacts: Chuck Keller (Salmon), Dennis Hudson (Region)

6.6.C.5 (page 77)	Inventory existing Reclamation screens and develop program to upgrade to current criteria if needed (Reclamation lead).
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Background: An inventory report was submitted to the Council in March 1992 that summarized information on Reclamation constructed/owned fish protection facilities and repayment and water service contracts on Pacific Northwest streams used by salmon and steelhead. The report also recommended programs to improve Reclamation constructed/owned facilities where needed and to require adequate fish protection facilities when Reclamation issues or renews contracts. Reclamation has initiated efforts to develop a Memorandum of Understanding with the Oregon Department of Fish and Wildlife (ODFW) regarding screening needs associated with contracting activity and to complete a predesign report for upgrading Reclamation constructed/owned screening facilities. The predesign report is scheduled for completion by early 1994.

Recent Activity: The list of potential screen upgrades on salmon and steelhead streams to be evaluated in the predesign report has been finalized and field inspections of the proposed sites will begin in September. We are also working on a list of screen needs in eastern Oregon related to resident fish protection at the request of the State.

Contacts: Fred Crase (overall program), Dennis Hudson (predesign report), Jim Budolfson (contracts)

Section 7--Coordinated Implementation, Monitoring, and Evaluation

7.1.A (page 79)	Establishes a Basin Oversight Group to pursue aggressive implementation of the salmon program (Council lead).
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No information has been received from the Council as to organization and meeting schedule of the Basin Oversight Group. However, Reclamation participated in a Salmon Strategy Progress Review conference conducted by the Council in April 1993.

Contact: Fred Crase

7.1.B.2 (page 80)	Expand the implementation planning process to include land and water managers, and others, and prepare an annual implementation work plan (BPA lead).
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No information has been received from BPA as to the organization and meeting schedule of the implementation planning process.

Contact: Bob Riley

7.8 (page 85)	Accept and evaluate promising new ideas for improving salmon survival (Reclamation co-lead).
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Background: Reclamation has been, and will remain, receptive to promising new ideas for improving salmon survival. For example, Reclamation has worked with the Environmental Defense Fund to explore new methods of purchasing water for flow augmentation and is participating on the Snake River Basin Water Committee to identify new sources and methods of obtaining flow augmentation water. In addition, several new river operation ideas for improving salmon survival were evaluated as part of the 1993 ESA consultations on operation of the FCRPS with NMFS--several changes to river operations during 1993 were made as a result of these evaluations.

Recent Activity: Reclamation cooperated with several entities to release additional water to improve flows in the lower Snake River during the late fall chinook juvenile outmigration from the Clearwater River in August (see discussion under measure 3.2).

Contact: Fred Crase

Section 8--Mitigation of Adverse Effects

8 (page 88)	Develop a mitigation plan including recommendations to, and financing assistance from, Federal agencies (Council lead).
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Background: The Council released a staff discussion paper in April 1992 entitled "Survey of Economic Impacts of Council Salmon Protection Enhancement Measures" which identified some of the areas of economic impact associated with the Council's program. A second report summarizing public comment on the

discussion paper was released in July 1992. The Council is presently considering recommendations for mitigating impacts.

Recent Activity: No activity to report for July - August for this measure.

Contact: Bob Riley

The Bureau of Reclamation
New Directions in Water Management and Conservation

Pacific Northwest Region's
Water Conservation Program Activities

*** An Overview/Update ***

July 1993

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The Bureau of Reclamation

New Directions in Water Management and Conservation

The purpose of this summary report is to provide an overview of the ongoing water management and conservation program activities of the U.S. Bureau of Reclamation's Pacific Northwest Region. It also serves as an update to the January 1990 report.

Introduction

The Reclamation Act of 1902 authorized the formation of the U.S. Reclamation Service. Its purpose was to reclaim the arid lands of the West through irrigation and to stimulate the settlement and economic development of the region. The Reclamation Service was renamed the Bureau of Reclamation (Reclamation) in 1923.

As irrigation opened the way to agricultural prosperity, the West grew in population and economic stability. What were once desert lands are today some of the most productive agricultural areas and urban centers in the world. Reclamation's multi-purpose projects provide dependable water supplies for agricultural, municipal, industrial, and domestic users. Project powerplants produce clean, renewable hydroelectric energy. These projects also provide flood control, recreation, water quality, and fish and wildlife benefits for the public. The success of the Reclamation program has resulted in benefits to regional and national economies that will continue long into the future.

In recent years, however, environmental concerns, budget constraints, and a decreasing demand for new irrigation development are changing Reclamation's primary role as developer of large, federally-financed agricultural projects. The original goal has been attained--the arid West essentially has been reclaimed. New development of major agricultural water and power projects is increasingly difficult to justify from economic and environmental perspectives.

In October 1987, Reclamation began to shift its program emphasis from water resources development to water resources management. Reclamation's overall mission continues to be to manage, develop, and protect water and related land resources in an environmentally and economically sound manner in the interest of the American people. However, in order to meet the growing water demands and resource management needs of the West, Reclamation is looking first to new and innovative opportunities for effective, efficient management and conservation of our existing water resources.

The establishment of Regional Water Conservation Centers as focal points for conservation program activity was identified as a key element of Reclamation's recently developed Strategic Plan. These centers will be used to help coordinate and highlight Reclamation's role in the sound management of the Nation's water resources.

Pacific Northwest Region

Reclamation's Pacific Northwest Region, headquartered in Boise, Idaho, encompasses the lands within the Columbia River drainage and coastal streams of Oregon and Washington. This area includes the States of Idaho, Washington, most of Oregon, western Montana, and small sections of western Wyoming and northeastern Nevada.

Irrigated agriculture has been economically important in the Pacific Northwest since the turn of the century, and Reclamation has been active in water resource development and management in the area since the passage of the Reclamation Act of 1902. Today, Reclamation project offices throughout the region coordinate the operation of 54 Federal reservoirs with a total water storage capacity of almost 19 million acre-feet, and through local irrigation districts, coordinate the delivery of full and supplemental irrigation supplies to nearly 3.2 million acres of cropland. Crops produced on Federally irrigated lands within the region include a wide variety of cereals, forages, field and vegetable crops, seeds, fruits, nuts, and other specialty crops valued at nearly \$2 billion in 1990. Reclamation also coordinates water supply operations with numerous other Federal, State, and private entities for power production, municipal and industrial supply, flood control, navigation, and fish, wildlife, and recreation benefits.

One of the most pressing environmental water issues facing the Pacific Northwest today is the declining populations of wild salmon that once thrived in the Columbia River basin. In 1900, an estimated 13 to 16 million wild salmon and steelhead returned to the Columbia and Snake Rivers to spawn in the streams where they were born. In 1991, only 2.5 million fish were expected to return, and less than 500,000 of that number would spawn naturally in streams and lakes. Many factors have contributed to the decline, but perhaps most obvious are the physical and operational impacts resulting from dams built by Federal agencies and public and private utilities over many decades.

The Northwest Power Planning and Conservation Act of 1980 attempted to address the issue of mitigation on the Northwest's anadromous fishery. Programs developed during the 1980's addressed some of the physical and operational constraints with programs directed at fish screening, habitat restoration, and the establishment of an operational "water budget" to assist with juvenile fish migration to the ocean. But despite the efforts of these regional programs, low regional water supplies for 5 of the last 6 years have pointed to the need for more dramatic and cooperative action.

In the spring of 1990, several organizations petitioned the National Marine Fisheries Service to list a number of wild stocks of Snake and Columbia River salmon as threatened or endangered under the Endangered Species Act. The Snake River sockeye was subsequently listed as endangered in December of 1991, and the Snake River spring/summer and fall chinook were listed as threatened in May 1992. Those actions have accelerated regional concern and program action directed toward finding a regional solution.

In response to Reclamation's redirected mission, as well as the renewed commitment to recovery of the Northwest's anadromous fishery, the Pacific

Northwest Region has initiated a number of water management and conservation initiatives to allow better management of Northwest irrigation supplies while providing increased benefits to other uses. An overview and update of these initiatives are covered in the following document. They are entitled The Pacific Northwest Water Conservation Program Activities and are made up of Operations Program Activities and Planning Program Activities.

Operations Program Activities

Regional Water Conservation Center

The establishment of Regional Water Conservation Centers as focal points for conservation program activity was identified as a key element of Reclamation's recently developed Strategic Plan. These centers will be used to help coordinate and highlight Reclamation's role in the sound management of the Nation's water resources.

Reclamation's Pacific Northwest Regional Water Conservation Center will give a central focus and visibility to Reclamation's overall regional water conservation program and create an active technical assistance and information/education link among Reclamation offices, regional water users, other local, State and Federal water resource agencies, organizations, and the general public.

Primary program functions to be provided through the Regional Water Conservation Center include:

- Focus for regional conservation program activities
- Water conservation planning assistance to districts
- Central water resource and conservation program database
- Regional AgriMet program development
- Regional conservation information and education outreach

Status: Ongoing.

Contact: Allen Powers, Manager, Regional Water Conservation Center, Boise, Idaho, 208-378-5280.

AgriMet - Northwest Cooperative Agricultural Weather Network

Background

In 1983, Reclamation's Pacific Northwest Region began developing and operating a network of automatic agricultural meteorological monitoring (AgriMet) stations to provide real-time climatic data for modeling site-specific agricultural consumptive use. This was accomplished in cooperation with the Bonneville Power Administration (BPA) as a combined effort toward the conservation of water and power. The program has since expanded from the original BPA program sponsorship into AgriMet partnerships throughout the Northwest. These include public and private electric utilities, land grant universities, the Cooperative Extension Service, Soil Conservation Service, Agricultural Research Service, and other State and local water resource agencies and organizations.

The AgriMet network operates in conjunction with Reclamation's hydrological meteorological (Hydromet) data collection system. Hydromet is a network of real-time monitoring stations used in river and reservoir operations. The

Hydromet and AgriMet networks automatically collect and transmit data via Geostationary Operational Environmental Satellite (GOES) to a computer data base at Reclamation's Pacific Northwest Regional Office in Boise, Idaho.

Crop water use models utilizing the 1982 Wright-modified Penman equation are run daily to translate climatic data from each station into daily evapotranspiration (ET) information for crops in the area of the station. The information is published in local newspapers throughout the Region during the irrigation season. The data base can also be directly accessed by authorized users with a personal computer and telephone modem. For information on becoming an AgriMet user, please contact the Bureau of Reclamation's Water Conservation Center at the Pacific Northwest Regional Office in Boise, Idaho at (208)-378-5282.

The AgriMet network presently consists of 50 cooperative weather stations located at various agricultural sites throughout the Region. Eleven of the 50 stations are part of Washington State University's Public Agricultural Weather System (PAWS). The data is incorporated daily into the regional AgriMet database in Boise through computer data transfers. Other AgriMet data transfers and statewide program development are also being coordinated through Oregon State University, Montana State University, and the University of Idaho.

Current Status

Ongoing. Since January 1993, there have been 4 new Agrimet stations added to the network. The stations, named Grand View, Fort Hall, Glenns Ferry, and Picabo, are all located in Idaho near Grand View, Fort Hall, Glenns Ferry, and Picabo respectively.

Contact: Monte McVay, Conservation Agronomist, Regional Water Conservation Center, Boise, Idaho, 208-378-5282.

Water Conservation Planning Followup - Reclamation Reform Act

Background

The Reclamation Reform Act of 1982 requires Federal project water entities to develop water conservation plans that outline definite water management objectives, specific water conservation measures, and a time schedule for implementation of economically feasible actions. Plans are to be reviewed at least every 5 years and updated as necessary.

Reclamation's Pacific Northwest Region has initiated a proactive followup program with water entities to prepare, review, and update the water conservation plans required by the Reclamation Reform Act. Water management and conservation planning assistance is being adapted to the specific needs of water entities, as appropriate, at both the assessment and the more detailed planning levels. A progressive planning relationship will be established with each of the 117 compliance districts through an active water management and conservation followup process. Where appropriate, such followup is being

designed to complement such ongoing programs as the Review of Operation and Maintenance Program and the General Investigations Program. Through such assistance, Reclamation will assist districts to identify opportunities to better manage, augment, utilize, or conserve available water supplies.

Current Status Ongoing. New Reclamation-wide criteria for evaluating water conservation plans are currently being developed for the purpose of assisting districts in the updating of their existing water conservation plans. Beginning in January 1994, Reclamation will begin a formal review of all existing water conservation plans for adequacy based on these criteria. Reclamation is encouraging districts to update their plans and submit them for this review.

Contact: Allen Powers, Manager, Regional Water Conservation Center, Boise, Idaho, 208-378-5280.

Lake Chelan Reclamation District Water Management and Conservation Program

Background

The Manson Unit of the Chief Joseph Dam Project, Chelan Division is referred to as the Lake Chelan Reclamation District (District). The district has approximately 6,500 irrigated acres made up of primarily apple orchards. The irrigation system consists of a pressure pipeline that was constructed between 1971 and 1976. The District water supply is provided from one major pump station located on Lake Chelan. Twelve additional pump stations, located throughout the district, serve to pressurize the system. Portions of the District's system have the capacity to provide irrigation water on demand, with the exception of a few weeks during the peak demand season. In the remaining portions of the District, demand for irrigation water often exceeds the system capacity.

The District developed a comprehensive water conservation plan in July of 1992. Within the plan, the District outlined several components targeting improvements in irrigation scheduling, real-time monitoring of pump operations and water accounting. These components will be implemented in two phases over a three year period. Phase 1 is to be completed during 1993 and will consist of: (1) the installation of remote monitoring equipment and Radio Frequency (RF) telemetry at selected pump stations, (2) the establishment and RF interfacing of an initial base weather station for crop water use modeling, and (3) the development and implementation of a local irrigation scheduling program that includes establishment of a dedicated computer, soil moisture monitoring equipment and irrigation specialist services. Phase 2 will consist of: (1) installation and interfacing of the remaining pump monitoring sites, (2) installation and interfacing of additional weather stations, and (3) continuation of the on-farm irrigation scheduling demonstration program.

Current Status

Ongoing - The District is currently in the process of reviewing and approving a Cooperative Agreement between Reclamation and the District for a Water Management and Conservation Demonstration Program. Implementation of the agreement will be in two phases as explained above. Reclamation's involvement under Phase 1 of the agreement will be to cost share in the installation of the initial base weather station including linking it with the regional AgriMet network, support the establishment of the District's on-farm irrigation scheduling demonstration program through technical assistance in crop water use modeling and field scheduling techniques, and obtain funding for a dedicated computer and soil moisture monitoring equipment. Cost for implementation of Phase 1 is estimated to be \$74,157. Reclamation and the Washington State Department of Ecology will contribute 27% each and the District will fund the remaining 46%.

Contact: Brian Hamilton, Water Operations Systems Specialist, Pacific Northwest Regional Water Conservation Center, Boise, Idaho, 208-378-5282.

Global Climate Change Response Program

Background

The potential long term variability of water dependent ecosystems is of major interest to Reclamation. One of the primary objectives of Reclamation's Global Climate Change Response Program (GCCRP) is to research and develop technologies to assist existing or proposed irrigation projects in dealing with potential changes in crop water demand and/or available water supplies.

In the Pacific Northwest Region, research is being conducted in the Rogue River basin in southwestern Oregon. The program objective is to make a number of tools available to operators of the facilities to improve management decisions. These tools consists of three databases, a demand model, a supply model, ditchrider software, efficiency block software, billing software, database software, and interfacing software. All software has been developed with FOXPRO 2.0.

The ditchrider software is used for entering distribution system data on lap-top computers and is copied into the office databases periodically. The other office database is used by accounting software for water assessment billing. The day-to-day operations by the irrigation districts and coordination of the storage, conveyance, and delivery systems are being interfaced with the supply and demand computer models. Two new definitions are being used in the program. These are "Efficiency Block" and System Coefficient." An Efficiency Block is a designated area of irrigated lands from which acreage and type of crops are known that lay downstream from a flow measurement point within a delivery or conveyance system. This block may be as small as that served by a sublateral or as large as an entire irrigation district. A System Coefficient is the ratio of measured or computed irrigation demands (requirements) to that of measured supply (deliveries) within an efficiency block.

Current status

Modeling efforts are being completed and reports are scheduled to be finalized by October 1, 1993. In addition to the Medford Irrigation District, early GCCRP outreach efforts for transferring this technology include the Rogue River Valley Irrigation District (Medford), Farmers Irrigation District (Hood River), and Middle Fork Irrigation District (Hood River).

Contact: Jerry F. Buchheim, Regional Manager, GCCRP, 1340 Myers Lane, Medford, OR 97501 (Telephone 503-773-2002)

Water Education for Teachers (Project WET)

Background

Reclamation's Pacific Northwest Region continues to support Project WET - an interdisciplinary, supplementary water education program for teachers. The original WET program was developed in 1984 by the North Dakota State Water Commission and received national recognition as a model water education program.

The goal of Project WET is to facilitate and promote the awareness, appreciation and knowledge of water resources through the development and dissemination of classroom-ready teaching aids and through the establishment of state-sponsored Project WET programs. Special emphasis is given to strengthening educator's understanding of the importance of water to all water users and to the belief that wise water management is essential to the future social and economic livelihood and prosperity of our country.

Project WET addresses a wide variety of water-related topics. Educators learn about atmospheric water, surface water, and ground water, including aspects of contemporary water management issues like water conservation, water pollution, water laws, water supply and demand. Activities are designed to be hands-on, self-contained, and user-friendly.

In 1989, an organization called the Western Watercourse was established (sponsored through Montana State University) and dedicated to the development of water education projects throughout the western United States. The intent was to export the North Dakota WET program into Montana and Idaho. With support from Reclamation's Pacific Northwest Region, Project WET Idaho is being coordinated within the state through the Idaho Water Resources Research Institute. Reclamation's Great Plains Region has supported the development of Project WET Montana.

Since completion of the Montana and Idaho pilot programs in 1991, Project WET programs have been initiated in Arizona, Colorado, Nevada, North Dakota, Utah, and Wyoming. Fifteen additional states and Puerto Rico have expressed interest in the program.

In 1990, the Western Regional Environmental Education Council, original sponsor of the nationally recognized Project Learning Tree and Project WILD, began endorsing Project WET as a national water resources education effort. Reclamation is the sponsor of National Project WET which is currently in its second year of a three-year development period. Development of National Project WET is scheduled for completion by September 1994, after which it will be made available throughout the country.

Current Status Ongoing.

Contact: Debee Schwarz, Public Affairs Office, Boise, Idaho, 208-378-5020.

Water Measurement and Accounting Enhancement Program

Background

Water Measurement and Accounting Enhancement is a pilot demonstration program intended to create a cost-sharing incentive for implementation of improved water measurement and accounting practices in the field as they are associated with water conservation planning by districts. Under this program, the Regional Water Conservation Center has developed ongoing pilot programs with Frenchtown Irrigation District in western Montana and Aberdeen-Springfield Canal Company in Southeastern Idaho.

The program is structured to provide a 50% cost-share incentive that is not to exceed \$10,000 for approved demonstration projects in water measurement and accounting. To be eligible, districts must submit demonstration project proposals based on identified water conservation plan measures.

Current Status

Frenchtown Irrigation District: A stilling well and a float gage were installed in the main canal in the spring of 1992, and the canal was flow-metered several times to develop a rating curve. Vandals destroyed the gaging station during the irrigation season resulting in incomplete diversion records for the year. The gaging station was moved to a more secure site in May of 1993 in preparation for irrigation season. There are currently tentative plans for cost-sharing the installation of a permanent water measurement weir at the site.

Aberdeen-Springfield Canal Company: The system currently has a rated section with concrete sidewalls and a gravel bottom. The section is monitored automatically, and calibrated about once a month. Flow measurements on the rated section have a substantial degree of variability due to shifts in the rating curves caused by moss and weed growth. Upon approval of the Memorandum of Agreement, in which Reclamation will share in 50% of the cost of the weir, the rated section will be replaced with a broad-crested weir.

Contact: Brian Hamilton, Water Operations Systems Specialist, Pacific Northwest Regional Water Conservation Center, Boise, Idaho, 208-378-5282.

Water Management and Conservation Assessment

Background

Water Management and Conservation Assessment studies are designed to aid irrigation districts in identifying areas in which maintenance of the conveyance system, methods of water measurement, and formulation of water management policies might be improved to promote water conservation. Several such studies are presently being conducted under the Investigation of Existing Projects Program.

Current Status

Reclamation conducted a study of the Wilder Irrigation District in June of 1992 in response to an invitation from the district. The primary focus of the study was on that portion of the system below the Deer Flat Reservoir. A report summarizing the findings as well as associated recommendations was finalized in December 1992.

A similar investigation took place at the Tumalo Irrigation District on May 9-15, 1993. A report summarizing this is due for completion in late summer of 1993.

Preliminary arrangements have been made for a study to be performed at the Minidoka Irrigation District. No schedule dates have been set for the investigation at this time.

Contact: Robert L. "Hap" Boyer, Irrigation Systems Specialist, Irrigation Operation and Maintenance Branch, Boise, Idaho. (208) 378-5334

Idaho Power Solar Study

Background

In June of 1993, Reclamation distributed a draft agreement to Idaho Power Company (Idaho Power) and four Idaho AgriMet Site Co-sponsors.

Once finalized the purpose of the agreement will be, in part, to outline a technical program for expanding the solar monitoring capabilities at four AgriMet field sites located at Parma, Kimberly, Aberdeen, and Picabo, Idaho. The expanded solar monitoring capabilities will supply data for Idaho Power to evaluate the opportunities for large scale commercialization of electricity generated from solar powered photovoltaic (PV) cells.

Solar energy reaches the earth's surface as irradiance directly from the sun and diffuse irradiance from the sky. Both components must be known in order to estimate the energy produced by various PV system designs. Currently, AgriMet weather stations monitor the total incoming global radiation. The diffuse radiation component must be separated from this in order to differentiate between solar and diffuse irradiance. This will be accomplished

through the use of a second LI-200S pyranometer configured with an adjustable shadow band consisting of a leveling fixture, shadow band, and shadow band mount.

Idaho Power will fund the equipment and installation costs which are not to exceed \$1800 per station or \$7200 total. Reclamation will provide for all necessary labor and equipment for the installation, calibration, and operation of the additional solar monitoring equipment. Reclamation will also coordinate with each of the four AgriMet Site Co-sponsors in arranging for periodic equipment adjustments for tracking solar angles.

Current Status

Ongoing. Four shadow band units were machined from plans supplied by LiCor Inc. One of the units has been installed at the Federal Center test site in Boise, ID for calibration. This and the remaining units will be installed at the four sites in July, 1993.

Contact: Monte McVay, Conservation Agronomist, Regional Water Conservation Center, Boise, ID, 208-378-5282.

Crop Census Pilot Project

Background

The objective of this pilot project is to evaluate the possibility of cooperative data sharing with the Agricultural Stabilization and Conservation Service (ASCS) in meeting Reclamation needs for cropping information on Federal irrigation projects.

Annually, Reclamation publishes a document called "Summary Statistics" that includes information on water distribution, crop acreages and overall crop production from Federal irrigation projects.

Historically, this information has been gathered at the farm level through a "crop census" program administered by local irrigation districts, and summarized by Reclamation at the project and regional level. The importance of accurate and timely data in documenting the overall costs and benefits of operating Federal irrigation projects in addition to problems associated with current methodologies in the gathering of the data, has led to proposals to explore potential alternatives to either replace, improve, or augment current methods.

A number of United States Department of Agriculture (USDA) programs require that agricultural producers report and certify crop acreages annually through the ASCS. As a result, the ASCS has developed an intensive, dynamic crop reporting system on a county-by-county basis throughout the United States. ASCS's system was identified as the most logical choice to potentially provide an alternative source of accurate annual cropping information.

Two changes in the ASCS crop reporting system over the past decade enabled the concept of data sharing to be feasible. First, the ASCS crop reporting system has been fully computerized in recent years allowing for increased flexibility in overall database management. Second, the percentage of agricultural crop acreages incorporated into ASCS's crop reporting system has increased dramatically over that same time period, due in part to increased reporting and cross-compliance requirements of associated USDA programs.

Based on the preliminary discussions with ASCS, it was agreed that we would pursue the cooperative evaluation by selecting a pilot irrigation district in each of two counties, and establish a pilot effort that was designed to look at two things:

- 1) The adaptability of ASCS's current crop reporting system to produce district-specific information.
- 2) The extent to which ASCS crop information, once delineated by district, can meet, or be adapted to, the Reclamation crop census program need.

The Gem Irrigation District in Owyhee County, and the Wilder Irrigation District in Canyon County agreed to participate in the pilot.

Current Status

During May, Reclamation worked locally with each district and ASCS county office to cross-reference district service acreage with ASCS's computerized "tract" system. It took approximately two days of map and roster cross-referencing at each county office to correlate ASCS's system to flag the Gem and Wilder Irrigation District tracts. This process could ultimately be incorporated by ASCS into their regular database structure and grower reporting process.

The tract cross-referencing has allowed ASCS to develop district-specific queries to their crop information database (using 1992 crop data). Preliminary outputs show that during the 1992 crop reporting season, the ASCS county systems recorded cropping acreages for approximately 71% of the Wilder Irrigation District service area, and approximately 73% of the Gem Irrigation District service area. With crop reporting currently underway for the 1993 season, Reclamation is working with the pilot districts to encourage increased reporting by their water users through the remainder of this season to further evaluate the potential for obtaining substantial district coverage. ASCS's regular reporting period will close July 1, although late sign-ups are accommodated later into the season.

With the district cross-referencing already accomplished, we should be able to evaluate preliminary 1993 cropping data for each district as early as August 1. This will allow the applicability of the available

output to Reclamation's crop information needs to be evaluated and potential problems or opportunities for expansion of the concept to other districts, counties, projects, or regions to be identified.

Contact: Allen Powers, Manager, Regional Water Conservation Center, Boise ID, 208-378-5280.

Planning Program Activities

Regional Water Conservation Technical Team

Background

In addition to the establishment of the Pacific Northwest Regional Water Conservation Center to provide an operational technical assistance and information/education outreach, Reclamation has established a "core" Conservation Technical Team. This core planning team will be involved in the development of specific water conservation demonstration projects as part of Reclamation's overall water management and conservation program development.

Foremost on the agenda for the team is a series of water conservation demonstration projects to respond to salmon recovery strategies outlined in the Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program.

Current Status

Ongoing.

Contact: Onni Perala, Activity Manager, Conservation Technical Team, Boise, Idaho, 208-378-5090.

Salmon Recovery Water Conservation Demonstration Projects

Background

The Northwest Power Planning Council has asked Reclamation to work with the States of Idaho, Oregon, and Washington, irrigation interests, and others to implement water conservation demonstration projects and evaluate their effectiveness in salmon recovery.

In response, Reclamation has cooperated with other interest groups to select four water conservation demonstration projects under this initiative. The Snake River Flow Augmentation Project is intended to demonstrate the viability of using some form of water conservation as a tool to increase streamflow volume for the salmon migration in the lower Snake River. In addition, three Tributary Enhancement Water Conservation Projects one in each of the States of Idaho, Oregon, and Washington, are being developed to test the physical, economic, environmental, and institutional viability of water conservation for improving flows and water quality in critical salmon production areas.

These projects will evaluate non-structural technical improvements in facility operations, water measurement and accounting procedures, and irrigation system scheduling, as well as possible structural improvements in associated water supply and distribution systems.

Plans to conserve, reallocate, or temporarily reassign water supplies to provide habitat enhancement or augmentation flows may also require some form of contractual and institutional modifications. Reclamation is also investigating a number of potential water allocation mechanisms such as water banking and marketing, dry-year option leasing, storage buy-backs and other measures.

Snake River Flow Augmentation Project

The Snake River Flow Augmentation Demonstration Project will be part of a comprehensive salmon management program for the Snake River system. In this project conserved water would be managed to provide flow augmentation at specific times for salmon passage. Such augmentation might be used in flushing juveniles downriver, or providing freshets to aid upstream bound adults reach their headwater spawning areas.

The focus of the Snake River Flow Augmentation Project at present is the evaluation of conservation measures for the Northside Canal Company (Northside) in southern Idaho.

The Northside diverts from the north bank of the Snake River at Milner Diversion Dam near the town of Hazelton. The lands served extend from the Hazelton vicinity to downstream of Bliss, a total of 160,000 acres. Towns in the area include Hazelton, Eden, Jerome, Wendell, Gooding, Bliss, Tuttle, and Hagerman. The canal system is constructed in an area underlain by lava flows, resulting in substantial distribution system losses. The intent is to make the delivery of water more efficient through structural system improvements and increased management capability.

A number of opportunities are being studied that have potential to conserve water supplies for Northside. These include (1) lining a reach of the main canal through an area of badly fractured rock (estimated to be leaking 100-150 cfs), (2) constructing three regulating reservoirs in a small portion of the Northside service area known as the "W" lateral system, giving the district the capability of redirecting or storing excess flows as they occur, and (3) automating one of the regulating reservoirs on the "W" lateral system.

The water to be regulated as a result of items 2 and 3 is water which presently flows over the canyon rim into the Snake River. The regulated water supply would be kept available for use by Northside rather than lost. Regulation reservoirs would also alleviate the sediment load currently carried to the Snake River by these surface returns. This has been noted as a major issue by the Mid Snake Irrigation Water Quality Coordination Committee in a July 24, 1992 report to the Idaho DEQ. Another group concerned about surface flows are the fish hatchery operators who are situated on the banks of the Snake River alongside the spring outflows. They want a continued supply of ground water emerging from the springs and no sediment laden surface water from the rim.

Through the course of the study it appears that items 2 and 3 will remain quite popular and that item 1 could be controversial. The study will be

conducted in close concert with the Idaho Department of Water Resources (IDWR).

Current Status

Reclamation is currently working on obtaining NEPA compliance for the whole project. Sites for the three regulating reservoirs have been identified (item 2) and work is being performed on the automation system (item 3).

Contact: Onni Perala, Activity Manager, Conservation Technical Team, Boise, Idaho, 208-378-5090.

Tributary Enhancement

Background

Three tributary enhancement projects are being cooperatively developed within Idaho, Oregon, and Washington to address the issue of habitat restoration for weakened anadromous stocks in selected Northwest river basins. The primary objective of these projects is to demonstrate the ability to enhance local instream flow regimes to address problems of spawning, incubation, rearing and passage on particular tributaries. While enhancement for spawning and incubation purposes is one objective of the projects, flow limitations have been found to be more restrictive on rearing and passage in many tributaries.

The demonstration projects are expected to include some diversion improvements, including consolidation of multiple small structures, and fish passage facilities. Conversions of open lateral distribution systems to pressurized pipelines, and automation and re-regulation of water delivery systems may also be included. The three demonstration programs are described below.

Idaho--Lemhi River Basin (Tributary to the Salmon River)

The Lemhi River Basin extends from Salmon, Idaho to the southeast approximately 60 miles. The study area comprises the reach of river extending from diversion L-3A at River Mile 5.50 upstream to diversion L-7A at River Mile 8.32.

This reach of the Lemhi River was identified a barrier to passage of salmon and steelhead in a report entitled "Lemhi River Habitat Improvement Study" made to BPA by Ott Water Engineers in December 1985. The local waterusers have expressed a desire to follow up on certain of the recommendations made in that report as a proactive approach to solving this problem along with other water management problems in the same reach. When approached by Reclamation, waterusers within the Lemhi County Soil Conservation District said they were willing to curtail a portion of their diversion at critical passage times to provide a "fish-flush". Water would be used to move juvenile fish out into the Salmon River during the spring out migration and/or to move adult fish upstream to spawning grounds. The timing of these flushes is to be determined by the Idaho Department of Fish and Game. Irrigators have agreed, in writing,

to as many as three flushes per spring/summer. The waterusers need the improved diversion facilities to accomplish this. Existing diversions are largely rock berms which are bulldozed into the river each year. The berms are vulnerable to washout by freshets of even nominal magnitude. The proposed solution is to construct permanent diversion facilities at each diversion with the capability to regulate and monitor the diversions. To solve fish passage problems, the proposed structures will have fish screens to assure downstream migrants safe passage to the Salmon River and ladders to concentrate flow, allowing returning adults upstream escapement to reach the upper river spawning grounds. A consolidation of two closely adjacent diversions, L-7 and L-7A, may also be possible.

When Reclamation began work on water conservation demonstration projects in response to the Northwest Power Planning Council's amendments to the Columbia River Basin Fish and Wildlife Program, a steering committee comprised of Idaho interests recommended the Lemhi Basin as a worthwhile undertaking to demonstrate how a river system operation could be improved with structural and/or nonstructural improvements. Reclamation approached the Lemhi Soil Conservation District in February 1992 with the result that agreements were initiated. The waterusers want technical assistance to layout, design, fund, and construct the permanent diversion structures that will provide for the operation of Lemhi River waters for the benefit of both fisheries and irrigation. The Lemhi River Basin was also selected as a "model watershed" project under the Council's program. The proposed diversion and passage facilities will provide the improved access to upstream habitats necessary to achieve the production increases expected from the watershed improvements.

Washington--Yakima River Basin (Tributary to the Columbia River)

The Yakima River reach involved extends from the confluence of the Naches River at River Mile 116.3 downstream to Sunnyside Dam at River Mile 103.8 and is located near the city of Yakima. The objectives of the study are to identify a solution to river fluctuations downstream of Sunnyside Diversion Dam and to have water available to react to critical streamflow situations below the diversion dam. For a number of years the Yakima Project has tried to operate the Yakima River system to deliver 7000 cfs to irrigators and have 200 cfs or some other target flow going past the lowest regulated diversion (Sunnyside). The closest regulated storage is 16 hours travel time from Sunnyside Dam. More than 50 entities divert water from the Yakima River system below the reservoirs, with only five placing orders for changes in their diversion amounts. As a result, it is only by coincidence that the target flow is met. Usually the flow is exceeded, but occasionally shortfalls occur. In the worst case, there is no flow in the river below the diversion, the diversion to Sunnyside is not met, and the diversion dam pool is severely depleted. The study objectives are to (1) identify the potential to regulate flows, (2) obtain additional water for streamflow, and (3) develop a plan of operations to make the streamflow more uniform.

When Reclamation began work on water conservation demonstration projects in response to NPPC amendments to the Columbia River Basin Fish and Wildlife Program, a steering committee comprised of Washington State resources

interests recommended using the Yakima River system as a demonstration of how system improvements and revised operation can make a system resource meet both irrigation and fishery needs. Reclamation met with Washington State Department of Ecology, fishery interests and irrigation operators who reiterated that it would be in the best interests of all parties concerned to solve the problem of flow below Sunnyside Dam. The most recent study to resolve this issue was a plan to build East Selah Regulation Reservoir.

The proposed conservation project will consist of a regulating reservoir adjacent to the Yakima River immediately downstream of Union Gap. The regulating reservoir should be sized to store at least 400 acre-feet and ideally about 1000 acre-feet. Surface area would be about 20 to 30 acres. The proposed site includes private and tribal lands. It is presently occupied by a gravel pit operation that has about two years worth of resource remaining. The reservoir could possibly be filled using the Wapato Irrigation Project canal, which would eliminate construction of a separate fish screen facility and a new diversion works or pumping plant from the river. An outlet works to the river above Sunnyside Diversion Dam will be required. Because the reservoir is to be used to stabilize flows in the river, the pool surface could fluctuate unpredictably. The tribe and adjacent landowners are interested in having the facility operated as a preserve, and not open to recreation.

A second phase of the Washington Water Conservation Demonstration Project is nonstructural. Procedures to accomplish water leasing will be developed. The State of Washington has enacted legislation creating trust water, but to-date there is no case history of this capability being used. The plan is to devise a process which would establish price parameters, a process for soliciting willing lessors, a process to evaluate water rights from which water would be leased, and contractual arrangements for the leases.

With the leasing procedure and the capability to control flows in the lower system near Sunnyside Dam, it is expected that flows can be kept at better levels than the existing conditions. This would benefit both smolt passage and juvenile rearing.

Oregon--Wallowa River Basin

Currently the Oregon demonstration project remains in a formative stage. Initially, a pipeline project with the Soil Conservation District was considered. The project proved to be an unpopular one, and has been discontinued. Local resource managers are now inventorying problems and will identify other potential projects. The list will be prioritized in January 1993, narrowing the alternatives to those which have local support. The problems and needs inventories are being developed for Wallowa County by two independent consultants as well as the Wallowa County Salmon Recovery Team. It is anticipated that the technical analysis and investigation necessary to prepare water conservation plans will begin shortly after February 1993. The plans will address current water use and management of water for threatened species.

Current Status

An operating agreement is out for review for fish passage in the Lemhi River basin. Designs for the fish passage facilities are underway.

Meetings have been held in Wallowa and Grant Counties to try to identify conservation opportunities in the Wallowa and John Day River Basins.

Contact: Onni Perala, Activity Manager, Conservation Technical Team, Boise, Idaho, 208-378-5090.

Yakima River Basin Water Enhancement ProjectBackground

The Yakima River Basin Water Enhancement Project was initiated to examine water supply problems and development opportunities in Washington's Yakima River basin. The objective was to improve the availability of the water supply for irrigation while protecting and enhancing fish and wildlife resources. Phase 1 of the project focused on fish passage and protective facilities at all major diversions. These facilities have been completed.

Phase 2 of the project consists fish passage facilities on smaller diversions. These are now in the construction phase. Phase 2 also focuses on reducing water diversions through (1) structural improvements to conveyance and distribution systems and to individual on-farm facilities, and (2) nonstructural changes related to the operation, management, and overall use of water.

Legislation related to this project was introduced in Congress in 1991 and 1992, but was not passed. The legislation's major feature, the "Basin Conservation Program," represented a new approach to doing business. Checkpoints for implementing the program step-by-step were established in the bill. These checkpoints involved decision making by a local oversight group, Yakima Indian Nation, State government, the Secretary of the Interior, and the Congress. Local, State and Federal funds would be dedicated over time for cost-shared implementation as water user proposals are approved.

Current Status

Phase 1 has been completed. Phase 2 is under construction. Legislation similar to that which included the "Basin Conservation Program" that was defeated in 1992 has been introduced by Congressman Jay Ingler for 1993.

Contact: Eric Glover, Activity Manager, Boise, Idaho, 208-378-5083.

Upper Deschutes River Basin Water Conservation Project

Background

The Upper Deschutes River Basin Water Conservation Project is a cooperative effort of Reclamation, the Oregon Water Resources Department, and local entities, including the Arnold, Central Oregon, North Unit, Tualo, Ochoco, Squaw Creek, and Swalley Irrigation Districts. The overall study is designed to improve water use efficiency, to enhance and stabilize Deschutes River flows for recreation and fish and wildlife, and to reduce irrigation shortages during critical years. The past 6 years of below normal precipitation has exacerbated the instream flow problem and highlighted the nature of irrigation shortages. The study seeks ways to solve basin problems through conservation and improved efficiency. Distribution efficiency and onfarm operating system efficiency are being emphasized.

Canal Lining Demonstration Project

Central Oregon's unique volcanic geology contributes to high rates of water loss in surface distribution systems. Canals in the area traverse fractured basalt and other volcanic materials that are highly porous and vulnerable to water seepage. Previous studies indicated that canals along the Deschutes River south of the Crooked River in central Oregon lose up to one-half the diverted water before it reaches farm units. Water lost from the canal system goes into the regional aquifer, which lies 700 to 900 feet below the surface near Bend, Oregon. This water returns to the river near the confluence of the Deschutes and Crooked Rivers. Canal seepage water is lost to beneficial use in the reach between the diversion and the springs where the aquifer surfaces.

As part of the Upper Deschutes River Basin Water Conservation Project, a canal-lining demonstration project has been initiated on portions of the Arnold and North Unit main canals. Construction on the demonstration project began in the fall of 1991. Additional lining was placed in the spring and fall of 1992, and the balance of the project is slated for the spring of 1993. Five contractors representing 16 materials suppliers placed 17 different combinations of lining materials. The installed length of demonstration liners will total about 10,000 lineal feet. Project cost, including monitoring and evaluation will total about \$3.2 million. The cooperating irrigation districts, contractors, and material suppliers are providing about 60 percent of this cost through in-kind services, equipment, and materials.

Reclamation will monitor the project over a 10-year period. Installation costs, effectiveness of controlling seepage, and costs for maintaining the liners will be evaluated. Information generated from this demonstration project will provide data needed to help develop a comprehensive water conservation plan for the Deschutes River basin. The project will also provide general information on canal lining costs and performance applicable to other areas. Reclamation hopes that this demonstration will spark similar studies and develop more effective and less costly methods for reducing canal seepage losses throughout the West.

Onfarm Demonstration Project

The onfarm portion of the study seeks to determine practical methods for conserving both water and energy by improving the efficiency of lateral and onfarm systems. A significant portion of the study area has the potential to provide gravity pressure at the farm turnout. Providing gravity pressure would conserve water and power. Many users could improve the efficiency of their operations, resulting in water savings and an increase in production value. The demonstration project would provide valuable data to the study for developing alternatives. A key goal for the demonstration is the identification of potential funding mechanisms that would allow implementation without necessitating a large Federal program.

Study cooperators will consider potential options in addition to canal lining and onfarm changes for saving water. These options include operational, nonstructural, and institutional changes. Examples include moving diversions points, off-stream storage, regulating facilities, water pricing, forecasting, alternative operations, and conjunctive use. The study will identify locations and opportunities to use these options. Analysis will include estimates of conservation, accomplishments, and costs.

Current Status

All canal lining installations in the Canal Lining Demonstration Project are complete. The first project report is due in December of 1993.

On Farm Demonstration Project Lateral 41.1, North Unit Irrigation District, is currently under construction and is due to be completed in the fall of 1993. La Casa Mia Project, Central Oregon Irrigation District is due to begin in the summer of 1993.

Contact: Eric Glover, Activity Manager, Boise, Idaho, 208-378-5083.

Optimization Studies

Background

Reclamation is engaged in several studies through its general investigative program that have the objective of optimizing the use of water through improved efficiencies, watershed and riparian improvements, changes in institutional and legislative constraints, and various conservation measures. Studies are currently being conducted in the Grande Ronde, Willamette, and upper John Day river basins in Oregon, the upper Snake river basin in Idaho, and the Flathead river basin in Montana.

Grande Ronde River Basin

The Grande Ronde Water Optimization Study focuses on model watershed development and improving habitat for salmon. It has been incorporated into the Northwest Power Planning Council's "Model Watershed" program for Oregon. The program is an integrated, interagency effort among Federal and State

agencies, Indian tribes and local interests to restore and enhance the Grande Ronde and Wallowa watersheds. The program is evaluating measures to enhance stream flows and improve water quality through watershed and riparian improvements, water conservation, and offstream storage development. The study will develop a framework for basin wide stream restoration and provide a cooperative implementation strategy.

Current Status

Meetings are being held with Wallowa County to identify conservation opportunities.

Contact: Dave Duncan, Activity Manager, Boise, Idaho, 208-378-5084.

Willamette River Basin

The Willamette River Basin Optimization study is a cooperative effort to identify institutional and statutory constraints associated with promoting optimal use of existing and new supplies. Reclamation is working with the State of Oregon on the Willamette River Basin Optimization Study to identify institutional and statutory constraints associated with promoting optimal use of existing and new supplies. Plans will be developed for consideration by the State for implementing its water resources strategy.

Current Status

Very preliminary studies on municipal, industrial and domestic water use and quality have been performed.

Contact: Ron Golus, Activity Manager, Boise, Idaho, 208-378-5085.

John Day River Basin

The Upper John Day Water Optimization Study focuses on model watershed development and improving habitat for salmon. It is a cooperative effort between Reclamation and the Oregon Water Resources Department to develop an integrated, interagency water resource program for the upper John Day River. Programs are being developed for five subbasins. Program elements include riparian enhancement, water shed improvement, surface and groundwater storage, water rights regulation and lease/purchasing, irrigation efficiency, fish passage and instream habitat restoration.

Current Status

Several possible conservation measures have been fostered by the Optimization Study. These are proposed to be implemented as small scale demonstration elements. These are removal of several large pushup dams, small demonstration using gated pipe, tailwater reuse, ditch consolidation, replace nonfunctioning drains, aeration to increase

infiltration, landleveling, gravity pipeline, and alternative wintertime stockwater.

Contact: Dave Duncan, Activity Manager, Boise, Idaho, 208-378-5084.

Upper Snake River Basin Storage Optimization Study

The Upper Snake River Basin Storage Optimization Study is evaluating alternative operational scenarios for existing storage reservoirs. The Upper Snake River Basin Storage Optimization Study will develop and evaluate alternative operational scenarios for the storage reservoirs in the Upper Snake River Basin. Existing Federal reservoirs include American Falls, Grassy Lake, Island Park, Jackson Lake, Lake Walcott, Palisades, and Ririe. Total active storage capacity is about 4 million acre-feet. Reclamation is cooperating with the State of Idaho and others in this project.

Competition for the water supplies of the upper Snake River basin is becoming more pronounced. Opportunities for the potential transfer or marketing of water supplies are beginning to surface. The available water resources appear to have the capability to assist in meeting additional needs provided that appropriate technical and institutional vehicles for broader use can be formulated.

Reclamation and the State of Idaho are also interested in assessing development limits and constraints resulting from the 1984 Snake River water rights agreement (Swan Falls agreement), as well as developing an improved water management plan for the upper Snake River basin.

This study is in large part designed to build on and extend previous hydrologic studies, both surface and groundwater, conducted by the Idaho Department of Water Resources, Reclamation, and other agencies. The study will evaluate several conceptual uses of the water resources of the upper Snake River basin while recognizing existing water rights and entitlements. The study is addressing a number of options that would make the operation of Reclamation and non-Federal water regulation facilities more flexible in the upper Snake River basin to meet the many competing demands placed on this water source.

Current Status

Ongoing efforts in gathering cropping and irrigated acreage information for determining irrigation practices should be completed in counties around Milner in summer, 1993 and in the Boise and Payette area in 1994.

Contact: Ron Golus, Activity Manager, Boise, Idaho, 208-378-5085.

Flathead River Basin Storage Optimization Study

The Flathead River Basin Storage Optimization Study is focusing on development of a hydrologic and water quality computer model to evaluate options and capabilities in meeting future water resource demands of the Flathead and related portions of the Clark Fork River basins.

The Flathead River Basin Storage Optimization Study is addressing the multiple water demands and water uses of the Flathead River basin and related portions of the Clark Fork drainage in western Montana. A linked hydrologic and water quality computer model for the Clark Fork/Flathead River basin is also being developed. The model will be used to evaluate options and capabilities for meeting future demands for instream flows, supplemental irrigation, power, fish and wildlife, and recreation.

Current Status

A work station with linked water quality and hydrologic models is planned to be installed in late summer, 1993.

Contact: Ron Golus, Activity Manager, Boise, Idaho, 208-378-5085.

Josephine County Water Management Improvement Study

Background

The Grants Pass Irrigation District (GPID), part of the Rogue River Basin Project, serves approximately 7800 acres with natural flows diverted at Savage Rapids Dam.

In 1971, Congress passed Public Law 92-199 directing the Secretary of Interior to perform a feasibility study of the Grants Pass Division of the Rogue River Basin Project. A major facet of this study was evaluation of anadromous fish passage problems at Savage Rapids Dam. Public Law 93-493, passed in 1974, authorized construction of interim modifications to the fish passage facilities. This work was completed, but identification and implementation of measures to fully correct the problems were delayed for a variety of reasons. A major element of the current study (initiated in October 1988) is to assist the GPID and others to identify implementable solutions to the fish passage problems and seek funding for appropriate implementation.

In addition to the fish passage issue, the State of Oregon's Water Resources Department completed a final proof survey of the Grants Pass Irrigation District's service area in the early 1980's. As a result, the district received a water rights certificate which provides for diversion of approximately 97 cfs based on a water duty of 1 cfs per 80 acres. This is a little over half of the district's historical diversion rate of 180 cfs. The District was issued a temporary permit to continue diversions at the historic rate while developing a plan to reduce these diversions. This permit calls for submittal of a water management plan to the Oregon Water Resources Commission in March 1994.

The conservation element of the study is focused on working with Federal, State, and local agencies and entities to address (among other things):

- The role of an irrigation district in an urbanizing area
- Local water requirements

- The appropriate water duty for the district with implementation of cost effective conservation measures

Resolution of these and other issues will impact selection and implementation of a solution to the fish passage problems at Savage Rapids Dam. The implementation of measures to meet the Grants Pass Irrigation District's water supply needs and resolve fish passage problems also have impacts that extend beyond the district's service area. Where appropriate, Reclamation input into the ongoing development of Josephine County's Master Water Plan is being provided as a part of the overall study activities.

Current Status

Ongoing. Planning study is scheduled for completion during fiscal year 1994.

Contact: Robert Hamilton, Activity Manager, Boise, Idaho, 208-378-5087.

Oregon Subbasin Conservation Planning

Background

Reclamation is cooperating with the State of Oregon to participate in a facilitating role to develop model subbasin irrigation conservation plans to bring irrigation and environmental interests together. This effort will permit Reclamation, especially where Reclamation projects are involved, to be a positive influence in resource management through optimization of existing water supplies to meet expanded water demands and achieve environmental enhancement. This study was initiated in FY 1993.

Current Status

A memorandum of agreement has been established between Reclamation and the Oregon Water Resources Congress (OWRC) to assist in program development for agricultural water management planning by irrigation districts in Oregon. \$35,000 have been provided to OWRC to aid in the development of pilot water management plans, preparation of a water management planning guidebook, and development of water management rulemaking proposals.

Contact: Dave Duncan, Activity Manager, Boise, Idaho, 208-378-5084.

Oregon Stream Restoration Planning

Background

Reclamation is cooperating with the State of Oregon to participate in a facilitating role with other Federal and State agencies and local groups in a broadbased effort to identify and evaluate measures to achieve stream restoration. The basin assessment will involve the total water resources and related land resources of a subbasin and will include headwater management, riparian restoration, lease/purchase of water, and conjunctive use of surface

and ground water. The study will recommend a framework plan and implementation funding strategy for each basin. This study was initiated in FY 1993.

Current Status

Ongoing.

Contact: Dave Duncan, Activity Manager, Boise, Idaho, 208-378-5084.

Idaho River Systems Management Study

Background

Reclamation is participating with the Idaho Department of Water Resources to formulate comprehensive plans for conservation, development, management, and use of water with several of the State's major river basins where Reclamation has projects and where competing water uses are strongly evident. The State will proceed through its public involvement and legislative process to implement the basin plans.

Current Status

Ongoing.

Contact: Ron Golus, Activity Manager, Boise, Idaho, 208-378-5085.

STATEMENT OF KAREN GARRISON

Ms. GARRISON. Good morning. I apologize for being late. I have not been feeling well, so I took a break but I clearly underestimated your capacity to keep this hearing on schedule.

I would like to begin by thanking the Chairman and members of the Task Force for this very well-timed inquiry.

At the most fundamental level, the crisis you address is not about stocks or species, but about river ecosystems and the failure to sustain them. In some ways, the region is closer than ever to reversing salmon declines, having adopted a strategy that acknowledges the importance of the ecosystem and particularly safe in-river migration.

In practice, however, prospects for resolution look dim as long as the federal agencies implement the strategy selectively, use any vagueness as an excuse for inaction and duplicate or seek to undo decisions about fish measures made properly by the Council. The federal agencies have been guilty of all those things.

The task force would play an enormously effective role if it got Bonneville and the other agencies back on track to implement the *Strategy*. We echo the suggestions of others to reconvene this task force or extend its life, to allow you to ensure the effectiveness of your actions over time.

We believe the *Strategy* is a useful framework. Its strengths include consensus support and the fact that it puts ecosystem improvements at center stage, calling for measures that could provide sufficient migration flows. Another plus is the expansion of the scope of the Council program to include water management improvements that could be vital as part of the bigger picture.

The chief weaknesses are the lack of specificity regarding implementation. Specifically, the *Strategy* fails to anchor its measures in flow objectives or travel-time objectives. It has no detailed implementation schedule or milestones for progress towards drawdowns, and as yet, it has no framework of rebuilding schedules for salmon with survival objectives or performance standards. In short, the program lacks teeth for implementation.

These faults are serious, but they need not condemn the *Strategy* to failure. The agencies have a clear mandate under the Power Act to mitigate and protect fish and wildlife and not just the endangered ones. But the agencies have not taken the initiative to move forward with the essential or long- or even mid-term plan. The transfer of funds and the responsibility for a detailed implementation plan to a fish agency such as the Fish & Wildlife Service could facilitate implementation of the program funded by Bonneville. We support such a step and we were pleased to hear Randy Hardy support it also. We urge the task force to make sure it happens.

But that step will not affect other crucial pieces of the program such as river operation and drawdown decisions. The task force should give the *Strategy* more teeth in that area. To do its job well, the task force has to understand the reasons for intense resistance to operations changes.

Full implementation of the *Strategy* conflicts with the imperative to optimize river operations for power, in Bonneville's case, or irrigation, in the Bureau of Reclamation case. As you know, these agencies are no longer authorized to make power production or irri-

gation diversions their highest priority. They have a multi-purpose mandate with fish as an equal player. But the tunnel vision of single-purpose agencies did not transform itself overnight with passage of the Power Act. A complex system of contracts, subsidized rates, agreements such as the PNCA and more informal agreements, perpetuates the single-use approach. They also promote the expansion of use and the continual expansion of use, not improvements and efficiency.

I think the region can have plenty of power, water and sustainable salmon runs, but not if the many pressures to maximize power production and irrigation diversion continue unchanged. Some progress has been made, but the goal of equitable treatment is still far off.

It is clear the old ways are not working for more than salmon. The Federal Government can no longer afford to subsidize inefficient use and the region cannot afford the shortages, the conflicts and the environmental degradation that comes with it.

What should the federal agencies do about this? There is a useful model in the energy field and the Chairman of this task force is a knowledgeable and effective advocate of it. It is called least-cost or integrated resource planning. The central tenet of it is to solve supply shortages by encouraging reductions in demand. The same concept has an application to salmon. If there is a conflict between producing energy and saving salmon, why not look for ways to change the demand for energy to better match a flow regime that keeps them healthy. Winterize homes at a faster rate, adopt seasonal electrical rates for the aluminum industry, arrange inter-regional energy transfers to take advantages of different seasonal load peaks. Measures like this make it cheaper and more attractive to run the river in a way that produces healthy stocks.

Water management improvements that put water in the stream can also reduce the cost of salmon recovery. One example is the dry year option lease program aimed at reducing the production of surplus crops. Surplus crops are grown on about 30 percent of the land irrigated in Idaho with federal water. NRDC studied a hypothetical leasing program that could provide water for fish in dry years by paying farmers to reduce their production of surplus crops. We found that power generated incidentally with those flows was worth twice as much as income lost when planning was cut back. In short, a program like that financed by Bonneville could pay for itself and could make available as much as 2 million acre-feet of water in the upper Snake, or almost that much. To make it possible to move forward on measures like this, we need new programs and/or the removal of obstacles that now discourage transfers from irrigation to fish purposes.

As you pointed out, Mr. Chairman, the agencies have no choice about implementing the Power Act. They do have a choice about whether to make it hard for themselves, forcing solutions in court, or bet ahead of the curve. Pressure to devote the entire hydrosystem to power will intensify as the region grows. Yet the agencies are now engaged in no systematic effort to identify and pursue changes in energy and water use that make salmon solutions cheaper, let alone to coordinate among competing uses. Until

they are, ultimatums about the inability to fund the Council's program seem misplaced.

I believe there is a need for the kind of inter-agency team or commission that you have mentioned today. It should be charged with ensuring compliance with a detailed implementation plan for the Council's *Strategy* and it should enhance inter-agency coordination, reduce duplication and seek ways to encourage energy and water uses that are compatible with stream flows needed by fish. The public should be represented on such a commission. And we would be happy to work with you to develop this idea further.

The question about the PNCA is very well taken. The best way to ensure implementation of the *Strategy* in the yearly operations planning process is to establish adequate flow or travel-time objectives for the river. Changes in membership and the mandate or the provisions of the PNCA could help but may be ineffective without specific flow objectives. And there is no reason why such objectives cannot be set in a way that allows for flexibility in dry years.

I want to close with a summary of recommendations:

One, we urge you to transfer fish and wildlife funds and the responsibility for implementation to the Fish & Wildlife Service, and I would say that the Fish & Wildlife Service is probably a better choice than NMFS, for a number of reasons, particularly because of its broad responsibilities for the 50 to 70 salmon stocks in the Columbia basin and the other species that are not yet on the endangered list.

Two, ensure coordination of full funding of the program with Council involvement in any prioritization process.

Three, promote the appropriation of funds for John Day and Lower Granite reservoirs by 1995.

Four, remove barriers to water transfers for fish.

Finally, establish a river management coordination commission to ensure the implementation of fisheries responsibilities under the Power Act and find ways to make existing uses of the river more compatible with fish.

Thank you.

[Prepared statement of Ms. Garrison follows:]



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TESTIMONY OF KAREN GARRISON
BEFORE THE BONNEVILLE POWER ADMINISTRATION TASK FORCE
OF THE HOUSE COMMITTEE ON NATURAL RESOURCES

September 24, 1993

This testimony offers the views of the Natural Resources Defense Council (NRDC) on efforts to rebuild Columbia Basin salmon stocks, in response to Chairman DeFazio's invitation of August 11, 1993. NRDC is a national nonprofit environmental group with about 160,000 members, more than 8,000 of whom reside in the Pacific Northwest. We have worked for a decade to reform western water policy, and have a longstanding involvement with energy conservation and fisheries protection in the Northwest. I direct NRDC's Northwest Water Project and serve as co-chair for Save Our Wild Salmon, a coalition of about 40 fishing and environmental groups in the region.

I would like to begin by thanking the Chairman and members of the Task Force for conducting this exceedingly well-timed inquiry. Despite an extensive federal presence in the Columbia Basin and required yearly reports to Congress on implementation of the Northwest Electric Power Planning and Conservation Act, federal agencies have operated dams in the Columbia system over the past decade with little systematic oversight from Congress. Without the benefit of such oversight the enormous public investment in the Columbia River system, though premised on the protection of much-prized salmon runs, may continue to promote the very practices which cause the steady demise of public resources.

Your hearing occurs at a time when salmon in the Basin face an unprecedented crisis. At its most fundamental level, that crisis is not about a particular stock or even a particular species; it's about river ecosystems and the failure to sustain them. In some respects, the region is closer than ever to reversing fishery declines, having adopted a strategy that acknowledges the central importance of providing safe in-river migration conditions. In practice, however, the prospects of a resolution to the problem look dim as long as the federal agencies fail to implement critical elements of the strategy and use any vagueness as an excuse for inaction. This Task Force would play an enormously helpful role if it put the Bonneville Power Administration back on track to implement the Northwest Power Planning Council's Salmon Strategy. My testimony will suggest ways to do that, as well as to address the Strategy's omissions.

The salmon protection efforts of the 1980s provide extensive evidence of the need for an ecosystem approach, and the poor bargain that substitutes provide. Nevertheless, historical

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biases continue to skew the perspective of the federal dam-operating agencies away from such an approach. The Army Corps has failed to budget for Salmon Strategy measures scheduled for 1994, yet it energetically studies a proposal to build a 350-mile closed pipe, complete with 35 rest stops, to flush young salmon to the ocean without interrupting hydrosystem operations. The cost: a mere \$6 billion, 5 times more than the estimated cost of improving river migration conditions through drawdowns.¹ The Bureau of Reclamation will soon complete a study of options for building a new dam to provide salmon flows (at costs that probably range from \$200 to over \$500 per acre foot), but refuses to consider self-financing water efficiency improvements with greater potential to increase flows in an EIS.² And Bonneville advocates the barging of fish around dams as a temporary measure during poor water conditions, then uses the existence of barging to argue against improvements in river conditions.³ Although each of these agencies is struggling to redefine a single-purpose mission that no longer serves it or the region well, numerous similar examples illustrate just how constraining those outdated missions can be, and how contrary to an emphasis on ecosystem restoration.

The region has little choice about changing the old ways: those ways simply aren't working any more. The tunnel vision of single-purpose agencies now encourages conflict over scarce resources where cooperation is essential. The federal government can no longer afford to subsidize inefficient water and energy use, nor can the region afford the consequences of those subsidies for fish, wildlife, and water quality. The pressure for reform comes from more than the salmon crisis. Indeed, changes in agency practices have become an economic imperative as the competition over limited water resources spirals upward.

The sooner the federal agencies stop fighting salmon protection measures and start concentrating on how to encourage more efficient and more compatible uses of the Columbia River, the quicker a difficult but necessary transition will be completed. As the ancient forest struggle demonstrates so clearly, delay tactics will not stave off the need for a reckoning; they will

¹ U.S. Army Corps of Engineers, Salmon Passage Notes, December 1992, pp 2 and 4.

² The Bureau has consistently refused to include Snake River Basin water management improvements in the System Operation Review, the only comprehensive study the agencies are conducting of long-term salmon restoration measures.

³ In 1992, when additional flows were released in the Upper Snake, Bonneville stored the flows rather than passing them through the Columbia, arguing that barged fish wouldn't know the difference.

simply make that reckoning more difficult, more costly, and less satisfactory.

If this hearing bears any resemblance to previous forums on salmon, you are likely to hear a chorus of buck passing from the agency participants rather than a flood of creative ideas for encouraging more sustainable use of the Columbia River. Bonneville likes to blame the fishermen, farmers fault the hydrosystem, and the Army Corps often blames the lethal ocean, perhaps because it can't talk back. This carping indicates more about the complainer than it does about the causes of salmon declines.⁴ I trust that the Task Force will seek information on the causes of salmon declines from independent sources before it draws conclusions. No credible source denies that the system of large federal dams is the largest source of human-caused salmon mortality in the Columbia system.

The Power Act made a striking revision in the mandates of the federal operating agencies by requiring equitable treatment of fish and wildlife with other project purposes. The Act still provides an excellent guide for salmon recovery planning, and has laid a foundation for the future. But the federal agencies have fallen far short of achieving the Act's goals, and a new paper mandate has proven no match for the contracts, pricing systems, informal agreements, and above all the power marketing engine that drives decision-making in the region. The buck-passing syndrome underscores the need for the spirit of Harry "The Buck Stops Here" Truman in the federal agencies involved in the Columbia Basin. NRDC thinks legislation may be needed to instill that spirit and ensure full implementation of the Power Act.

The remainder of my testimony describes these issues in more detail and answers the questions the Task Force posed to NRDC.

1. Is the NPPC's Strategy for Salmon an appropriate and sufficient framework for salmon recovery efforts in the Columbia Basin? What are its strengths and weaknesses?

The Salmon Strategy, while hardly a flawless attempt to comply with the mandates of the Power Act, contains many ingredients essential to a salmon recovery plan. Its major strengths are a

⁴ A U.S. District Court case recently found that hydropower customer groups lacked standing to attack decisions regarding harvest, in words that have some application here: "to permit these plaintiffs (aluminum companies and utility groups) to proceed with their claims under the ESA would be akin to permitting a fox to complain that the chickens had not been fed - sure, he has an interest in seeing that the chickens are well fed, but it's just not the same interest the farmer has, nor is it an interest shared by the chickens."

clear focus on the central issue for Columbia Basin salmon -- the need to create safe mainstem passage by changing the operation of the dams -- and the expansion of the scope of salmon efforts to include water management improvements and other measures. The Strategy also incorporates performance standards for some measures and stepped up efforts to track implementation and program results.

Extensive evidence reveals that the major decline of Columbia Basin salmon runs coincided with the construction and operation of big federal dams, which block and delay migration through the mainstem.⁵ The Power Council's 1990 Salmon Strategy broke new ground by calling for a combination of flow and reservoir drawdown measures to provide sufficient migration flow or velocity, consistent with the Power Act. Unfortunately, the federal operating agencies have treated the strategy like a menu, from which they can deselect measures they do not support (more on this problems below). That approach undermines both the Strategy and the Power Act itself.

The Strategy's greatest weakness may be its failure to anchor salmon measures to firm flow or travel-time objectives for salmon migration in the Columbia and Snake Rivers. Without these crucial objectives, the plan lacks teeth.

Other problems include the stalled development of a framework of rebuilding schedules for salmon stocks, objectives for smolt survival, and performance standards to guide the restoration process; the lack of an implementation schedule with milestones to ensure steady progress on the Strategy; and continued emphasis on barging fish around dams (although the strategy endorses deference to the fish agencies and tribes on barging decisions, a provision the Army Corps ignored this year).

The history of efforts to establish flow objectives illustrates their importance. The Council bowed to pressure from the hydropower industry when it originally adopted the water budget (a block of water designated for fishery use) as an alternative to firm flow targets. By 1986, the water budget's failure had become obvious. Even if optimistic assumptions had been realized, the original budget could have provided less total migration flow than the lowest minimums recommended by the fish agencies and tribes for dry years. Meeting even those deficient flow levels assumed that the budget would supplement a certain amount of base flow, but the base flows declined from projected levels once the budget was initiated. Furthermore, Bonneville provided the required Columbia River spring flows at the expense

⁵ Northwest Power Planning Council, Columbia River Basin Fish and Wildlife Program, 1987, p. 3.

of summer flows essential for salmon survival, rather than risk reduced generation of valuable winter power. To make matters worse, the federal agencies simply failed to provide more than 40 percent of the already deficient Snake River budget until 1990.

The lesson from this failure is clear. To rebuild salmon stocks, the federal agencies must provide what fish need -- a firm level of flow or velocity in spring and summer high enough to ensure timely downstream migration for salmon, not a compromise of a compromise. Unfortunately, the Power Council still has not acted fully on that lesson. In 1990, it declined to set flow or travel time objectives. It called instead for a combination of flows and drawdowns that could, if fully implemented, meet adequate flow targets. The agencies have implemented the budget, but nothing more. The new budget could achieve 220,000 cubic feet per second, the lowest Columbia River flow target acceptable to the fish agencies, in only about half of the historic years of record and would rarely provide more adequate flows. The agencies face no penalty or requirement to take alternative steps if they fail to carry out the reservoir drawdowns that are essential to fulfilling the promise of the plan. In short, the Strategy as presently configured lacks strong incentives for compliance.

Most of the weaknesses described above primarily effect Strategy implementation, not the integrity of the measures it contains. If the federal agencies were to implement the Strategy with diligence in its present form, I believe the region would be well on the way to rebuilding beleaguered salmon stocks.

Recommendation: Take steps to ensure adequate flow or travel-time objectives.

2. Is implementation of the Strategy for Salmon on track for timely completion? How well are federal and state agencies coordinating their activities with each other and with the Council to achieve timely implementation?

Bonneville and the Bureau met the "immediate" requirements for flows in the Salmon Strategy this year. However, neither the Council, the National Marine Fisheries Service, other fish agencies and tribes, nor even the operating agencies view those flows as adequate to rebuild the stocks. The Bureau is unlikely to be able to provide the same flows in some dry years without taking additional steps. The agencies are far behind schedule in implementation of other river operation changes critical to success of the Strategy.

Specifically, the agencies have made little voluntary progress toward implementing a prototype Lower Snake reservoir drawdown, despite the lack of any evidence of infeasibility. Nor have they made headway in the schedule for lowering the John Day pool. The

Council's Fish and Wildlife Program called for the lowering of John Day pool by 1994, yet the Corps now plans an absurd 6 years of study before it begins the work. The states of Oregon, Washington and Idaho, the Fish and Wildlife Service and the National Marine Fisheries Service all recently reiterated their support for these measures, yet the federal agencies failed to budget the funds needed for even preliminary activities in 1994. The agencies' approach to these measures (which other speakers will describe in greater detail) leaves serious doubt about their intention of implementing them at all.

The framework of rebuilding schedules and performance objectives, which is crucial to any effort to define and monitor program success, also lags behind schedule. Bonneville's budget cuts to the Fish and Wildlife Program this year apparently threatened further delay in the effort to establish a framework of rebuilding schedules and survival goals. While I understand that Bonneville and the Council have now resolved the dispute over adequate funding for next year's program, the tension over the cost of the program remains real. It should be addressed in the future with the full participation of the Council (see quest. 3).

That agreement does not, to my knowledge, cover funding for progress toward the lowering of John Day Pool or Lower Granite. Although the Corps would normally appropriate the money for this measure, Bonneville could get things moving by appropriating funds for a reluctant Corps, just as it did for bypass screens.

Recommendation: Ensure that Bonneville continues to fully fund and implement the salmon program, and that any prioritization occurs with the approval of the Council.

3. Bonneville asserts that its current financial condition will prevent or delay full implementation of the Council's fish and wildlife program. What measures can Bonneville take to ensure more stable funding for the Council's Fish and Wildlife Program, given its wide swings in revenues?

Bonneville's financial condition is not, or at least does not have to be, beyond its control. Bonneville chose to raise rates 15.7 percent rather than 17 percent this year. It chose to lower electricity rates in real terms over the past 10 years rather than raise them gradually, avoiding the political fallout that attends a double-digit hike. It chose to continue a discount for irrigation customers that cost other billpayers about a percent in higher rates, with no valid justification for doing so. And it chose to continue a subsidy to aluminum companies that raised overall rates by several points. In light of these choices, Bonneville's admittedly troubled financial condition hardly justifies failure to implement the Salmon Strategy.

Nonetheless, Bonneville's revenues and costs do swing, and steps can be taken to provide more stable funding. Bonneville should not ignore the option of eliminating special rates for aluminum companies and irrigators as part of its attempt to improve its financial condition. That change alone could cover the anticipated future costs of the fish and wildlife program. Bonneville should also consider establishing a mechanism that automatically adjusts rates with a more sensitive trigger than the existing provision. Rate changes could be triggered at the 1 percent level at 6 month intervals, rather than at the current, rarely used 10 percent level.

Bonneville has little control over the revenue variability caused by hydrology and weather. In the dry winters of 1992 and 1993, The agency spent hundreds of millions of dollars to purchase power to meet its load. In wetter years, the sale of nonfirm power generated with higher flows contributes as much as 15 percent of its revenue (hundreds of millions of dollars). Although the schedule and extent of this variability cannot be predicted, the fact of hydrologic variation is as predictable as death and taxes. One way Bonneville could provide more stable funding is to establish a fund for fish and wildlife purposes, paying into it differentially in wet years when revenues are higher. Such a program could also discourage the use of wet-year revenues to keep rates artificially low.

Costs are the other side of the equation defining Bonneville's financial condition. Bonneville is now engaged in a cost-cutting exercise as part of its function-by-function review. We would support efforts to eliminate Bonneville's fish and wildlife activities that duplicate those of the Council or the fish agencies and tribes. We could support an initiative that aims to monitor results more carefully and improve the effectiveness of fish and wildlife efforts. But we do not support a cost-cutting exercise in which Bonneville defines acceptable results outside a framework of performance objectives approved by the Council, or expands its role in fish and wildlife decision-making.

There are other options for controlling costs, particularly the high cost of purchasing power to meet load. Bonneville has not exhausted the potential to establish environmentally beneficial energy exchanges with other regions. The reoperation of Glen Canyon Dam, for example, may facilitate exchanges based on different regional operating constraints.

Bonneville has broad latitude to seek least-cost means of achieving biologically equivalent salmon objectives. It should leave the determination of the appropriate objectives to the Council and the fishery agencies.

Recommendations: The idea of moderating revenue swings through a fund for fish and wildlife warrants consideration. Bonneville should incorporate a sensitive automatic adjustment mechanism into its rates during the next rate case. The agency should eliminate duplication of the salmon planning responsibilities of the Council and fishery agencies.

4. What can be done to facilitate water conservation and other changes in regional water management to provide increased flows for power production and salmon recovery?

Water now under the control of irrigators represents the largest untapped source of additional flow to improve migration conditions for listed Snake River Salmon stocks.⁶ Increased flows in the Snake play an important role in the Strategy for Salmon. They can improve passage for summer salmon migrants not aided by a spring drawdown. They can help refill downstream reservoirs lowered for migration purposes. They can also help mitigate the energy costs of drawdown, helping avoid electricity rate increases. But flow releases from the Upper Snake should supplement, not replace, drawdown of Lower Snake reservoirs. A study for NMFS recently confirmed that even an aggressive program of water conservation and transfer measures produced less flow velocity through Lower Granite Reservoir than the deep drawdown of a single Lower Snake reservoir.⁷

Experts have estimated the technical water conservation potential (the amount that can be saved through improved equipment, canal lining and water management) in the Upper Snake Basin at 1 million acre feet⁸ to over 3 million acre feet annually.⁹ A significant but unknown amount of water thus conserved currently returns to the stream as return flows, so the net conservation

⁶ This response therefore focuses on the Snake Basin, but its conclusions apply to other Columbia River tributaries too.

⁷ Hydrosphere. SNAKE RIVER WATER ROUTING STUDY, Volume I, National Marine Fisheries Service, Sept, 1992, p. iv.

⁸ Hydrosphere. Water Supplies to Promote Juvenile Anadromous Fish Migration in the Snake River Basin, National Marine Fisheries Service, 1991, p. 6-10. Hydrosphere estimates annual conservation potential at 0.6 to 1.2 MAF.

⁹ Soil Conservation Service, SNAKE RIVER BASIN IRRIGATION WATER DISTRIBUTION AND USE, 1978, p. 44. The study projects a potential reduction in diversions of 4.4 MAF annually by 2020 from canal lining and improvements in irrigation management and equipment. I adjusted this projection by 0.8 MAF, the amount by which diversions have been reduced since the study was performed.

gain to the stream could be half or more of the above estimates.

The Task Force should keep two things in mind about conservation. First, farmers benefit from conservation, so are becoming more efficient all the time. Conservation undertaken in the decade after the 1978 drought reduced diversions by about 800,000 acre feet (AF) in the upper Snake alone.

Second, under current laws and practices, none of this conservation provides additional flows for fish. What happens to the extra water? In Idaho, many irrigators can carry it over from year to year as insurance against drought. Some water goes to more junior appropriators. These uses are perfectly legal, but they neither benefit ailing stream systems nor improve fishery conditions.

Farmers also use conserved water to irrigate more land than authorized in their permits or Bureau contracts. This use, called "water spreading," violates contracts, skirts the public process required before new consumptive uses can be approved, and potentially harms fish and wildlife. The Bureau of Reclamation and the state should put a stop to it.¹⁰

The fact that water conservation so seldom benefits streams has led NRDC to emphasize the creation of accessible water transfer mechanisms and streamflow protections, rather than recommending conservation as an end in itself. Increased use of transfers can increase the economic efficiency of water both by encouraging conservation and by allowing water to move to higher valued uses.

Seeking a transfer program of value to both farmers and fish, NRDC commissioned a study of a dry-year option leasing program aimed at surplus and low-value crops. Surplus crops are planted on about 30 percent of the land irrigated with Bureau of Reclamation water. The federal government tries to discourage production of those crops through the crop subsidy program. Our hypothetical water-leasing program aimed to provide water to fish by reducing surplus crop production in dry years. The report found that the power generated incidentally with water leased for fish purposes was worth twice as much as the income lost when crop production was reduced. In short, a dry-year leasing program financed by Bonneville could pay a farmer enough to make

¹⁰NRDC recommends that the Bureau promulgate regulations governing beneficial use, and review contracts periodically to ensure compliance. Before approving any expansion of use, the Bureau should reallocate a portion of the water to streamflows.

participation worthwhile, and potentially make available almost 2 million acre feet of water.¹¹

Institutions now allow the transfer of conserved water to fishery purposes in each state, but their success so far is dubious. In Idaho, a water bank allows rentals to farmers or for fish purposes, but significant obstacles discourage water trading for fish purposes. A senior rights holder who rents water for downstream fish purposes becomes subject to water bank rule 3.6, which accords that farmer lowest priority for reservoir space the next year. The possibility of losing next year's water supply has discouraged a number of potential rentals. Thousands of acre feet of water remain in Idaho reservoirs at the end of some irrigation seasons. Removing such barriers to interstate water and salmon commerce could facilitate the voluntary transfer of surplus or conserved water to fish.

No discussion of obstacles to improved water management would be complete without mention of the price of water. Farmers have less incentive to manage water wisely when water costs a few dollars per acre foot. The most affordable form of water conservation, irrigation scheduling and management, can improve efficiencies by over 10 percent. Yet many farmers in the Northwest use primitive management techniques because water is cheaper than labor. Development of water markets or tiered pricing systems at the district level could stimulate conservation.

Of the nearly 8,000,000 million AF of water shifted to fish purposes in each of the past two years, farmers have put forward only about 100,000 AF per year. Those farmers received compensation. Claims that farmers are being called upon to do more than their share for salmon overlook the low participation rate from the agricultural sector to date, the fact that proposed transfers would be compensated, and the extensive adverse impacts of irrigation diversions and pollution on salmon.

Recommendations: NRDC believes that a combination of voluntary, compensated transfers and administrative changes by the Bureau are needed to improve water management for streamflow purposes. The highest priority steps should be:

¹¹Hamilton, Joel R. and Norman K. Whittlesey. Contingent Water Markets for Salmon Recovery, Natural Resources Defense Council, 1992. The estimates of potential leases should not be considered additive with the estimates of conservation potential, since an option leasing program would encourage a combination of conservation and land fallowing.

- o the Bureau should insist on elimination of discriminatory obstacles to use of the water bank for fish purposes and work with the State of Idaho to achieve those changes;
- o the Bureau should develop institutional arrangements to increase streamflows, in close cooperation with Bonneville and the states. A pilot dry-year option leasing program should be developed;
- o the Bureau should resolve the problem of water spreading and other unauthorized uses of water, and reallocate a portion of that water for fisheries purposes;
- o the Bureau should revive the conservation planning program required by the Reclamation Reform Act of 1982, establishing new guidelines, and an enforceable implementation program. Savings from conservation programs funded by the government should be reallocated to fish;
- o Bonneville should finance water acquisitions for fish flows through its energy resource acquisition program. It should eliminate the irrigation discount and stop financing water conservation unless transfer mechanisms are assured.

5. Are existing institutions at the state and federal level adequate to implement salmon recovery plans? What improvements should be made to ensure better regional coordination among the many federal, state, tribal and private entities that must work together to achieve salmon restoration?

Changing the Council. The institutions clearly aren't doing the job they should. The Council could benefit from an infusion of new blood, particularly the appointment of all new members on the basis of expertise, not political patronage. The Council could be given authority to act on a simple majority. I'd place higher priority, however, on making sure the federal agencies implement the existing program.

Additional public involvement. The federal agencies suffer from no shortage of public involvement. Unfortunately key decisions are often made without seeing the light of day. The public was not given an opportunity to comment on the decision to delay implementation of crucial parts of the Council Strategy, and repeated pleas from the public for action has induced no visible response. Yes, Bonneville could benefit from more public involvement in the decisions that count. It could also benefit from greater responsiveness to the public.

Incorporating salmon recovery measures into the PNCA. The PNCA should certainly be changed to reflect salmon requirements. One way to do that would be to set flow or travel-time objectives that serve as hard constraints in that process, before the PNCA

is renewed. The PNCA has a provision that allows agencies to meet non-power requirements without penalty. Yet Bonneville has opposed adequate flow objectives in the past in part because existing PNCA provisions make it expensive for Bonneville to meet such objectives. If objectives were set as a precondition of PNCA renewal, Bonneville would have an incentive to negotiate new provisions that ease the financial burden of the current contract. The PNCA could continue to be a power maximization agreement, but fish flow needs would be met.

Flow or travel-time objectives (set on a sliding scale to provide higher flows during higher water years) would yield a number of other benefits for fish. They would encourage Bonneville to concentrate on the role of finding the least expensive means to implement designated objectives rather than trying to do the Council's job and set objectives itself. If legitimate technical difficulties arise with the current plans for drawdowns, alternative combinations of flow and drawdown could be tried. Flow objectives would also encourage Bonneville to modify the power system to harmonize it with a river regime that protects fish, thereby reducing the long-term costs of salmon measures.¹² Most importantly, such objectives could put some teeth into the Council's Salmon Strategy.

Alternatively, the purposes of the PNCA could be broadened to include fish, and the fish agencies and tribes could be made parties. The Agreement could have to be redesigned to optimize flows for fish and power, rather than maximizing power revenues. Adequate flow objectives would address the problems of the current PNCA more decisively. But if satisfactory flow objectives are not set as hard constraints on the PNCA prior to its renegotiation, its purposes and parties should be broadened.

Transferring funds to the fish and wildlife agencies. Such a transfer could achieve several positive goals. The Salmon Strategy suffers now from Bonneville's tendency to remake policy decisions already made by the Council, and to take on the role of a fish and wildlife agency. A second layer of decision-making occurs at the implementation stage, either through the PNCA process for planning river operations or through designating projects and a budget to implement the Council's Fish and Wildlife Program. Transferring responsibilities for funding and preparing a detailed implementation plan to a fish agency could help eliminate Bonneville's duplicative planning role and facilitate straightforward implementation of projects funded by Bonneville. If managed well, it could help control costs.

¹²See Lazar, Jim, Electric Power Resource Evaluation for Improved Fish Migration, 1991.

Regardless of which agency manages the program, that agency should be accountable for its finances and results. By its own account, Bonneville's record as a project manager could be improved; annual reports are not submitted regularly for projects it manages, and results aren't always carefully evaluated. The Task Force should consider establishing a procedure for periodic audits of the results and finances of the program, with or without a change in manager.

Creating a new entity with or without authority to mandate salmon measures. Salmon are already plagued with too many agencies and overlapping jurisdictions. What is conspicuously absent from the picture is a coordinating team or authority made up of the entities with responsibility for salmon. Such an entity could be charged with implementing the purposes of the Power Act by enhancing coordination among uses, reducing duplicative functions, and seeking ways to encourage more compatible use of the Columbia Basin. This entity could also be responsible for preparation of a detailed implementation plan for river operation changes and drawdowns, to be approved by the Council. New authorities would probably be required to make this entity more effective than the Council at implementing the Salmon Strategy. We would be happy to work with the Task Force to develop a more detailed mandate for such an entity.

Summary Recommendations

Mr. Chairman, your Task Force faces a daunting challenge. I urge you to take strong action and consider a broad range of options for putting implementation of the Power Act back on track. My main recommendations are to:

1. Ensure continued full funding of the Council's Fish and Wildlife Program, and consider establishing a special fund to help the program through Bonneville's revenue swings;
2. Appropriate funds (or otherwise ensure funding) to lower John Day reservoir to minimum operating pool by 1995 and conduct a prototype deep drawdown of Lower Granite reservoir by 1995.
3. Establish a river management coordination team, made up of the major entities with fishery responsibilities, mandated to ensure implementation of the Power Act, find efficiencies that benefit salmon, and coordinate across uses.
4. Encourage improved water management by creating a level playing field for salmon water transfers, endorsing a pilot water leasing program, and encouraging stronger water conservation programs by the Bureau of Reclamation.

We believe additional legislation may be necessary to ensure full implementation of the Power Act. A legislative package could foster implementation a number of ways, including:

- o transfer Fish and Wildlife Program funds and responsibility for preparing a detailed implementation plan to the Fish and Wildlife Service or other fish agency;
- o establish flow and/or travel-time objectives as hard constraints in the PNCA planning process;
- o hold up new contracts and agreements if the federal agencies failed to stay on an implementation schedule

The most important thing the Task Force can do is realign the federal agencies under its jurisdiction with the purposes of the Power Act, and rein Bonneville in from its effort to control fishery decisions not under its purview. We stand ready to assist you in any way we can.

Mr. DEFAZIO. I thank everybody for being so succinct.

Where to start—well, let us start where you were towards the end of your testimony, because it goes to Mr. Plenert. Mr. Plenert, we have had some discussion earlier with BPA, and I asked at least one of the other agencies about the idea of a lump sum transfer and administering through a multiplicity of jurisdictions the funding for the Council's plan. How do you react to her suggestion that Fish & Wildlife is the appropriate place?

Mr. PLENERT. Well, first of all, I believe that a lump sum funding does provide certainty, where you know you are going to have the funding to carry out whatever activities that you are.

As far as the Fish & Wildlife Service, you know, I would hate to sit here and say I would be willing to take on a bunch of extra duties. I feel we are kind of stressed to the limit right now with work, but if somebody saw fit to transfer the funding or have the Fish & Wildlife Service be responsible for that, yes, I would be willing to do so. We have a lot of experience with administering federal grants, federal aid funds. We administer, in the region that I am responsible for, some \$50 million of federal aid grants to the States and we do it with six people and with about a 2 percent overhead. So we do have the experience, and if somebody saw fit to do that, yes, I would entertain that.

Mr. DEFAZIO. To Ms. Garrison, I do not know what you were here for and what you were not, but we had some discussion with Mr. Hardy about lump sum transfers to the agencies, one is the fish and wildlife program and the other would be ongoing obligations to the Council. And what Mr. Hardy expressed was that, you know, they are interested but they would like to get something out of this, which is some higher degree of certainty of what their future budgetary obligations are going to be over some sort of planning period—5 years, 10 years, whatever. In one case, he cited apparently a 50-year or 60-year agreement with Montana on resident fish and wildlife on some sort of hold-harmless clause.

Could you comment? I believe he is raising a good point, which is that a key thing is some higher degree of certainty so we know how much we are going to need and what we are proposing to implement. But would you comment on his reservations there, the hold-harmless clause, what you know of the existing agreements, what you would think would be possible in future agreements.

Ms. GARRISON. Well, first, I assume you are only talking about the portion of the Council's program that is funded by Bonneville, as opposed to the operations side. I do not think it is possible for the Council to provide any kind of certainty about the other side.

Mr. DEFAZIO. Right.

Ms. GARRISON. That said, I think there is quite a bit of opportunity for prioritization in the program and the Council has shown itself to be very willing to participate in that. I also think that it is important to have accountability in the program, and I have made some suggestions in my written testimony for that. There should be routine audits, both in terms of the results and the finances. Beyond that, I do not know what kind of certainty the Council could give. I think it is making a very good effort to control the costs. You would probably have to ask them to find out more than that.

I think the advantages, the point in time that we now find ourselves in, is that there is a known program. So I think we have the ability to make a fairly general at least projection of costs over the next number of years. But the Council is much more expert in that issue than I am.

Mr. DEFAZIO. Well, what do you know about the agreement with Montana and the 60-year hold-harmless agreement? Are you familiar with that?

Ms. GARRISON. Nothing.

Mr. DEFAZIO. That is a candid answer, thank you.

Ms. GARRISON. I think the real issue is setting up a process that makes sure that we keep programs that are working. I think it is perfectly appropriate to get rid of programs that are not working. But the issue of how we define results and objectives is something that the Council has to be involved in, and the fish and wildlife agencies have to be involved in, because of the frequency in the past of Bonneville and other agencies using the lack of hard data or using the science as an excuse for not doing things.

Mr. DEFAZIO. Thank you.

Mr. Chapman, she made a suggestion regarding dry year leasing. Is that something that some of your members or associates would be interested in?

Mr. CHAPMAN. Specifically I am not sure whether they would be interested in it, but we have never seen a specific proposal on how the mechanism of dry year leasing would work. We have invited Ms. Garrison and Zach Willey and others to talk to various meetings of ours regarding this issue, but until we have specific proposals on how it would work and what it would do to us and for us, I am not sure that they would support it or not support it, but they are interested in at least looking at the proposal and making a decision on it, yes.

Mr. DEFAZIO. Okay. She raises a point in her testimony, which seems an impediment to willing sellers or lessors of water, which—and I cannot speak to this, I am not an attorney and certainly do not know anything about Idaho water law—but it says “A senior rights holder who rents water for downstream fish purposes for a year becomes subject to Water Bank Rule 3.6, which accords that farmer lowest priority for reservoir space the next year.” Why would that be, because the assumption is the person did not need the water, so why should they continue to have priority in the next water year?

Mr. CHAPMAN. That is what we refer to in Idaho as the last-to-fill rule, and it was one that was adopted by the water banks, in Idaho we have three, and also by our Idaho Water Resource Board, which is our constitutionally established water planning entity. What it says is that if you rent your water out of basin—in this case out of the particular drainage that you reside in—then you become subject to the last-to-fill rule because it is storage water that is being rented.

The reason for that is that conceivably you could have an individual with a very early priority storage right rent his water out of basin every year with virtual guarantee of refill to the detriment of the more junior water users. That water is supposed to be used for irrigation and the storage that is made up. So rather than hav-

ing the junior water right holders or storage right holders penalized because of this continual renting out of basin by a more senior water right, they have adopted this last-to-fill rule to protect the agricultural integrity of the area.

Mr. DEFAZIO. Well I understand that for general purposes, but we are dealing here with the potential that we could end up under a judge's mandate, which under federal law would usurp a whole series of Idaho laws, Oregon laws, Washington laws and others, requiring for salmon recovery. And it just seems to me in this case that a farmer who is willing to do this in order to reach the goals of a plan which we can defend in court—if we follow the Council's plan, I am of the conviction that we are not going to find the system under an injunction and have a judge running it. I do not know what the recovery plan is going to say, maybe it will be different, but just assume that the recovery plan is similar to the Council's plan. If we fully implement that, we have got a great defense in court. The reason all my forests are under an injunction is because the Forest Service did not follow a plan and did not develop a credible plan. So it is key.

So if part of accomplishing that would require, you know, some increased flows and part of the contribution could come from some leases, I would hope that the authorities here would revisit that and think, well gee, if that person is actually leasing the water for those purposes, then boy, they are really saving the rest of us from something potentially catastrophic. It has a bigger benefit for all the irrigation users. It is a different situation than someone profiting and saying I am not going to farm any more, hell I am just going to sell the water, you know, downstream to whoever. I mean it is a really different situation.

Mr. CHAPMAN. I understand what you are saying and I am certain that if we got to that point, it would be revisited. All I can tell you at this point is that that proposal was made to the water users and to the Water Resource Board last year and all categorically rejected it at this time.

Mr. DEFAZIO. Okay.

Mr. Stegner, I am confused by your testimony, quite frankly. I am not from Idaho, so I do not understand the politics over here. But I find it difficult to believe that your State government, for whatever reason, has adopted a position to stick it to part of the State when there is a viable alternative available which would not stick it to any of your State, which would be transportation. That is what you said, you said the solution is transportation, flows are not the solution, and this is all basically a plot and everyone has been stampeded by your government, which somehow has it in for your part of the State.

Now I could understand if some part of the State has to get screwed, and well, these are the people we do not like, so we are going to do it to them. But in this case, what you are telling me here is a solution which would resolve the situation, which would not stick it to anybody in your State at all, it would stick it to the ratepayers throughout the region. Now why is it that the State of Idaho has it in so bad for you that it is willing to hurt its own economy to get at you? It does not make any sense—it just does not make any sense to me.

Mr. STEGNER. I do not know either. First of all, I said that is a perception, but it is not being dispelled in any way.

Let me get this straight, you said the transportation option?

Mr. DEFAZIO. You said transportation was the solution, and what I am saying is transportation will not be paid for disproportionately by anybody in Idaho; in fact, it will have minimal impact in Idaho and have more impact on an aggregate basis, although not per capita, on Washington State with the largest population, Oregon with the second largest population, Idaho with the third largest population, because it will be spread throughout the region.

Mr. STEGNER. Are you talking about transportation of smolts?

Mr. DEFAZIO. Yes.

Mr. STEGNER. Okay, and your question to me is, Why does the State of Idaho not adopt that as its primary focus?

Mr. DEFAZIO. Well, you said that that is the solution, that these other solutions are, as you said, they were false solutions, they were politically motivated, they were of dubious scientific benefit, they were quick fix. I mean you went on with quite a few adjectives, deriding the Council's proposals and the flow-based or drawdown-based solution, and said quite simply all we need to do is transport them.

What I am saying is, if quite simply all we need to do is transport them and that was scientifically credible and I was from Idaho, I would be fighting to the death for that, as opposed to saying well we will sacrifice part of our State just for the heck of it.

Mr. STEGNER. Well, that is my position. You have just restated my position exactly. Now to ask me why I think the State of Idaho has adopted that position, I cannot speak for them. But you have just restated my position exactly. When we are being sacrificed, what else are we going to turn to? This is not something about making just a little sacrifice. Lewiston, Idaho, and Clarkston, Washington, is bearing the brunt of the entire drawdown sacrifice. And so when we are going to fight and we are going to try to put up some kind of defense, we are going to look for alternatives. We are going to try to point to things that are not going to be this detrimental to our area. I do not see anybody paying any kind of sacrifice to the degree that we are, when you are talking about drawdowns of the lower Snake River system.

Mr. DEFAZIO. Okay, well I guess here is the logical disconnect. The point I am trying to make is I do not think you have got a leg to stand on scientifically, biologically and to make those assertions you did because if you did, I am certain that your State and your representatives on the Council would stand up and fight and say, hey, we do not need to be doing any drawdowns, all we need to do is put all the fish in barges and deliver them to the ocean.

Mr. STEGNER. Again, you have restated my position.

Mr. DEFAZIO. I know, and what I am saying is I am not from your State, but I have got problems with my State government and the way they seem to be oriented toward Portland versus downstate, and I can understand that dynamic and that tension. But they would not ever go to the point of saying, gee, here is a burden we could spread to four States equitably, but we would rather make Eugene and Springfield pay for all of this because we

do not like them. I mean that is essentially what you are saying. What you are putting forward here is almost like a plot.

Mr. STEGNER. Well, I will restate that I think that is a perception in my area.

Mr. DEFAZIO. It is a perception, but I do not think it is a reality.

Mr. STEGNER. Well, no one is going to a whole lot of trouble to dispel it.

Now let me make a point please, if you will. I would like to go back to a statement that I think you have relied on throughout this hearing, that I believe Mr. Smith made, from National Marine Fisheries Service. When asked a question of whether or not his agency supported funding for drawdowns, he responded in the affirmative that yes, they did. Is that correct—am I correct in that?

Mr. DEFAZIO. I do not know, if Mr. Smith is here, we could ask him.

Mr. STEGNER. Well, I do not mean to put words in his mouth, but I do not think that was an attempt by the National Marine Fisheries Service to take drawdowns of the lower Snake River as the primary focus of the recovery plan. I think that you would have been better served to have these hearings after NMFS files that plan, because an awful lot of what has been going on here and talked about has been biology. And a month from now we will have that recovery plan, and we could talk specific points. So we have to make some speculation as to what they are going to say.

I hope they say drawdowns are biologically flawed and there are cheaper, better ways to do it, and we are not going to put any effort in that. Now that is not what some of the other people would have them say, but that is what I would like them to say. I do not think they are going to say that, because they are not going to deviate that much from the Power Planning Council plan.

But I would like them to say that. They are not going to say that. I do not think that anything he said today should be construed that drawdowns are the main focus for the recovery plan, or necessarily will be in the future.

Mr. DEFAZIO. Well, my recollection of the exchange was it was where one of the earlier witnesses living in denial said that drawdowns kill fish, and I said "Mr. Smith, is it the opinion of NMFS that drawdowns kill fish, and we should not be doing drawdowns," and he said no. And we did not get into a discussion of drawdowns in your area versus drawdowns elsewhere. I mean it was a more general discussion of drawdowns.

Mr. STEGNER. Well, we will see.

Mr. DEFAZIO. We will certainly see the recovery plan.

Mr. STEGNER. That is right.

Mr. DEFAZIO. I thank you.

Mr. LaRocco, I have taken more than my time.

Mr. LAROCO. Well, thank you.

Mr. Chairman, I think Joe is right though; I think there is a perception. I mean he is not misstating that one way or the other, in any way, shape or form. I mean that is the northern part of my district and Joe and I have sat together, I put together a salmon recovery working group and ever since this problem has emerged, I think that there has been a perception there and these are hard

felt, strongly felt feelings about it. But you know, we are all trying to work our way through this whole issue.

Joe, this is not necessarily a follow-up, but I was going to ask you a question anyway, I might as well. Can you direct me to the document or the source of the 4½ months drawdown for a test? You said in your testimony, "Plans are now being formulated for an additional test drawdown for Granite pool lasting 4½ months and costing \$40 million."

Mr. STEGNER. I can for the record.

Mr. LAROCO. Okay.

Mr. STEGNER. I will get you that.

Mr. LAROCO. Okay, because I want to follow up on that.

And then, Mr. Chapman, as you stated in your testimony, Idaho Power has been a positive force in the effort to restore salmon through changes in operation of their hydroelectric system. Let me just say I believe if all the players in the salmon debate demonstrated, you know, that type of spirit of cooperation that Idaho Power has demonstrated, I think we would be further down the road here. I just want to make that statement, because I think they have really done a good job.

If you could please, describe the general amount of precipitation in Idaho, specifically southern Idaho, in the last 6 years. What I am getting at is what you know about water—has this year been above average precipitation and what kind of chances do you think we have of meeting the 1993 flow targets, given our historical precipitation levels?

Mr. CHAPMAN. Congressman LaRocco, this year of course has been much, much better for us and a much better water year than we had over the last 6 years. Idaho, as much of the rest of the Northwest, has undergone one of the most severe droughts of record over the last 6 years, and we have had some very severe and difficult times trying to meet the water demands in our state. We were fortunate that we had reservoirs on our system because they kept us alive for an additional 3 years that otherwise we would have seen the agricultural economy of our State decimated.

With regard to meeting the flow targets this year, I think that the flow targets are very close to being met. I am not sure we will meet them exactly, but we will be much closer to meeting the 85,000 and the 55,000 that have been discussed in the biological opinion. However, there is absolutely no guarantee we will be able to do that next year. The cumulative effect is one that is often ignored in looking at water supply for target flows or velocities, regardless of what level they are. And when you look at the last 6 years, we would not have been able to meet those target flows, I do not think, any of those 6 years.

So the problem that we have is that when the fish need water and velocity the most is when we have the least amount of water and we have the least capability of providing that water no matter what kind of programs we have in place. And so we need to look at a combination of mechanisms to keep the salmon population viable through those periods.

Mr. LAROCO. Mr. Pedde, there has been some talk today about increased storage. That sounds like dams to me. Where are those sites? Do we have sites?

Mr. PEDDE. There are some sites. Part of the Power Council's plan requested Reclamation to work with the other agencies in the region to look at storage for fish purposes. We put together a team involving a number of folks from the various States. Initially there were over 500 different sites suggested. Working again with those same folks, we established some criteria to winnow them down to a manageable number. We are in the process of looking at preparing a final report. It should be out later this year, for the Power Council, on what those sites are and so forth. The Weiser site, for example, is one that as far as I know might have some potential. It is not without cost, of course, not without environmental considerations and everything else, but it may be a possible site that could be used if—

Mr. LAROCO. Is that the Galloway?

Mr. PEDDE. Galloway, yes, sir.

Mr. LAROCO. Okay.

Mr. DEFAZIO. I thought at this point you had some unallocated water in this area.

Mr. PEDDE. Very little, sir. We have got about 4.2 million acre-feet of storage space in the basin. Virtually all of that has either been set aside by authorized purposes or has been contracted to users of one type or another. We do have a little bit of unused space, unallocated and uncontracted space in Cascade Reservoir. We have administratively set that aside because of some very serious water quality problems up there.

Beyond that, we have virtually no space that is not dedicated to some purpose.

Mr. DEFAZIO. Some of it is dedicated to flow at this point, right?

Mr. PEDDE. No, sir, actually through Bonneville Power we have been renting water, we have provided this last year water which was set aside for power generation purposes, things like that, in order to come up with water.

One of the last blocks of water we had was approximately 100,000 acre-feet of space that was committed as mitigation for the Shoshone-Bannock water rights settlement that the state and the tribes negotiated. That agreement has not been fully consummated, so we did use that water this year, the water in that space.

But we have virtually no space left that is not committed to some purpose.

Mr. DEFAZIO. If you are renting water for electricity and you are contributing to fish and all that, I mean it sounds like you are pretty much tied in. So I am wondering why has the Corps left some of your dams out of the Systems Operation Review?

Mr. PEDDE. We need to step back a little bit and look at what happened. The Systems Operation Review was started before there was a listing. It was intended to address renewal of the PNCA contract and then some return of power agreements to Canada and so forth. The upper Snake projects were constructed, built, put in operation, long before the PNCA came into existence. They have never been part of that agreement; they are considered hydro-independent. In other words, they do generate power on some schedule, and that must be factored into Bonneville's planning. But they do not have rule curves like the rest of the system; they are not operated anyway the same way.

In dealing with that, those were excluded because, again, they are not operated the same way. There was concern that——

Mr. DEFAZIO. But could they not be potentially, if we looked at them on a comprehensive basis, be operated in a different way and contribute in part to the solution?

Mr. PEDDE. In trying to deal with that question, that concern, we did agree to look at a concept that said if there were a hypothetical 15th reservoir and it could provide water to the lower basin, what advantage would that be. And we proceeded on that basis.

Mr. DEFAZIO. Okay.

Mr. PEDDE. I might go on to say that a lot of studies and so forth that have been done under the SOR, the models, things like that, have not been developed for the upper Snake. At this point, to try to bring that in would probably delay the process 3 or 4 years.

Mr. LAROCO. I have read in the National Performance Review, otherwise known as re-inventing government, that your mission may change. The suggestion was that you have done enough damming of the West and so you may move on to other things. But maybe there is one more dam that you might be working on.

Mr. PEDDE. I would not say we have quit building things. We will build things but probably for different purposes and certainly under different circumstances and so forth.

Mr. LAROCO. I will just close my questions, Mr. Plenert, sort of off the subject, but I have spoken with Randy Hardy and other people on fish and wildlife about what I think you can do in a very sincere way with BPA to avoid a listing of the Kootenai sturgeon in the northern part of my district. I think that you and BPA have an opportunity to set a model here for federal agencies to get together prior to a listing because I think there is an imminent listing of that and I am a little tired of any turf battles that have gone on between BPA and Fish & Wildlife Service. I would like to lock you guys in a room and work those flows out on Libby Dam and whatever you can. I will work it out with Congressman Williams, if I can, but I would like to show the people of my district, particularly Boundary County, that federal agencies can get together prior to a listing and work this out instead of having you guys throw grenades at each other about the Kootenai sturgeon.

Mr. PLENERT. That is a real challenge, and I do not think you have to lock us in a room. I think we can lock ourselves in a room and accept that one and in fact, we are going to do that. I cannot guarantee what the outcome will be, but I believe that reasonable people can sit around a table and solve things. And we are going to try to.

Mr. LAROCO. Would you do that, please, because my district is beset with these problems.

Mr. PLENERT. I know.

Mr. LAROCO. And it starts up there with woodland caribou.

Mr. PLENERT. Yes, it does.

Mr. LAROCO. Kootenai sturgeon, grizzly bear, and it keeps going south.

Mr. PLENERT. Wolves.

Mr. LAROCO. Wolves, fish, snails.

Mr. PLENERT. When it comes to endangered species, you know, like in this region alone, I have got almost 340 that I deal with and

that is too many. And if we can avoid a listing, I think we are compelled to do so. And I, for one, as Regional Director for the Fish & Wildlife Service, have gotten the word from the Administration, to work together with other federal agencies—I do not have to be told three or four times. I understand what it means to work together and I pledge to you that I sure as heck will.

Mr. LAROCO. Okay, thank you very much.

Mr. PLENERT. Sure.

Mr. LAROCO. Thank you, Mr. Chairman, and thank this panel.

Mr. DEFAZIO. A minor question, but one that was on my list that I wanted to get through to Mr. Pedde, is about water spreading. We have discovered we have a fairly significant problem in Oregon that has been revealed recently with water spreading in the Umatilla basin and I am wondering, is that a problem out here?

Mr. PEDDE. It is a problem, not just in Oregon, but probably throughout the West in various degrees in various States. Historically, putting water to good use; spreading it a little further, was considered to be a desirable benefit. Ironically, the use of good conservation tools like sprinklers has helped perpetuate that, has helped create it. In today's climate, that is not necessarily viewed as a desirable use, in-stream flows and other things have a higher priority. We have a problem to work on. I do not know how to tell you to correct it yet at this point, other than we are going to try to see if we can get a handle on it.

Mr. DEFAZIO. Okay, then perhaps we will ask Mr. Beard what he intends to do about that.

Well, I want to thank everybody who participated. You know, it was not as long as the Portland hearing where I had 21 witnesses and we went for 10 hours. I think everyone was succinct, and we were able to get through a lot of people. Not everybody who wanted to testify got to testify, but we did our best to represent the range of interests involved. The record will be held open for 2 more weeks. Even after 2 more weeks, there is certainly likely to be continued consideration, not only by this task force but by Merchant Marine & Fisheries Committee, the full Natural Resources Committee, the Senate, the courts. There will be lots of venues for people to continue this discussion. Representing the district that has been most impacted by the old growth spotted owl timber controversy, I have just got to say that the rest of the region does not want to experience the catastrophic dislocation that comes when something ends up in the courts and under broad injunctions. I have heard some willingness for people to try and cross a few old lines and see if maybe they can revisit some of these issues and work together a little bit more, and that will help contribute to better solutions.

Thank you very much, the task force is adjourned.

Mr. LAROCO. Mr. Chairman—

Mr. DEFAZIO. The task force is not adjourned. We are in Mr. LaRocco's district, and he has the concluding comment.

Mr. LAROCO. Well, on behalf of the people of Idaho, I wanted to thank you for bringing the task force to Idaho. Obviously if I had my way we would probably be in three or four different venues in this State to talk about this issue, but given the time constraints, we held it here and brought people to Boise, which is not always

my first choice, but I thank you for being here, Peter. Thank you very much.

Mr. DEFazio. If we had a permanent committee with lots of time, I would like to visit other parts of your State. Thank you.

[Whereupon, at 1:17 p.m., the task force was adjourned.]

APPENDIX

SEPTEMBER 24, 1993

ADDITIONAL MATERIAL SUBMITTED FOR THE HEARING RECORD

SHOSHONE-BANNOCK TRIBES TESTIMONY TO THE
U.S. House of Representatives
Committee on Natural Resources
Bonneville Power Administration Task Force Field Hearing
State House Gold Room, Boise, Idaho
8:00 A.M. September 24, 1993

Herein are views of the Shoshone-Bannock Tribes concerning the protection, mitigation, and enhancement of the Salmon affected by the federal hydroelectric facilities on the Columbia River and Snake River. Lionel Q. Boyer, the Fisheries Policy Representative of the Shoshone-Bannock Tribes, will present this written testimony to the Boise Field Hearing on September 24, 1993.

The following questions were posed by Representative Peter A. DeFazio, Chairman of the BPA Task Force. The Shoshone-Bannock Tribes' responses to the specific questions are given here. You may consider the perspectives of this presentation as being "Headaches from the Headwaters." We can't do any management without being completely absorbed by the federal Endangered Species Act, no fish, and no recognition. We are not represented by the "Inter-tribal Fish Commission" as are the lower river tribes. We represent and manage our fishery through our Treaty Priority Right, in conjunction with our efforts to become a part of the Columbia River Fish Management Plan through our intervention in US v Oregon.

Question 1: Is the NPPC's Strategy for Salmon an appropriate and sufficient framework for salmon recovery efforts in the Columbia Basin? What are the strengths and weaknesses of the Strategy for Salmon?

Response:

The Northwest Power Planning Council (NPPC) Strategy for Salmon (Strategy) is a comprehensive planning document that covers the major areas that need emphasized for recovery of the Salmon. The document was developed with much public involvement. These are the major strengths of the document. However, the Strategy (along with the NPPC and BPA) attempts to both mitigate losses due to the development and operation of the federal hydroelectric facilities under the Power Planning Act, and recover endangered populations under the federal Endangered Species Act (ESA). The extinct, threatened and endangered Snake River salmon populations are heavily impacted by the federal hydroelectric system, and as the listings indicate, mitigation under the Power Act has not occurred. We are now in a major recovery struggle. "Recovery" is a horrible place to be, and the Power Act and its "Planning Council" could have prevented the listings. The Snake River coho salmon went extinct since the Power Act went into effect. The ESA listings plainly reveal that most of the "planning" done since the Power Act has failed.

The natural resource managers (the tribes and the tribes' Trustees, including the NPPC) have failed to successfully practice resource sustainability, which inevitably forced the situation where we had no other mechanism other than the ESA to prevent extinction. By petitioning under the

ESA, the Shoshone-Bannock Tribes had every intention to use the Stanley Basin Sockeye as the lever to correct the major issues causing its endangerment, which in turn would benefit all Columbia Basin Anadromous Fish, and even to some degree endemic resident fish, wildlife and riparian systems. We even had visions of this starting the Columbia River Basin on a road towards holistic, ecosystem-based resource management. Then came Salmon Summit and some promises. But now, it's back to business as usual - constant arguments and disagreements (for example, the hydrosystem's heavy mortality getting a biological opinion of no jeopardy), and endless stacks of competing words on paper.

There are some successful enhancement programs in the Salmon River Basin. The hatchery steelhead program provides large harvests for fishermen. The spring chinook program at Rapid River Hatchery has provided significant harvests also. The chinook salmon program in the South Fork Salmon River has provided harvest opportunity and overescaped naturally-producing salmon above the hatchery weir for two years (the only area in the Salmon River where natural salmon are at levels above the habitat carrying capacity). These examples defy the arguments that the federal hydrosystem is the only limiting factor to enhancement of salmon in the Salmon River. There are plenty of issues within the Salmon River Basin that need addressed, beyond direct hydrosystem effects, aside from the Power Act. Hatchery practices, unscreened and overly numerous irrigation diversions, habitat degradation, land and water stewardship practices of the state of Idaho and private landowners are all major parts of the enhancement/recovery puzzle in the Salmon River headwaters. These are not all fixable directly through the Power Act - therefore, the Strategy should compliment the actions needed in these headwaters, but not necessarily be the only driver.

Analysis paralysis is a major weakness of the Strategy - studies and reports that do not result in any meaningful protection or recovery. For example, the Strategy calls for a study of watersheds in which water availability in tributaries is an important limiting factor for weak stocks (6.6B14). There are major rivers in the headwaters (e.g., Main Salmon River above Sawtooth Hatchery, the Lemhi River) that are dewatered during chinook spawning times. Studies are not needed, water is. Through the vast and tangled profusion of committees, forums, and processes currently "necessary" to attempt to do any fish restoration or enhancement actions, we have all been limited to thinking only with our minds, rather than our hearts. We need to begin thinking with our hearts as well as our minds in order to restore the depleted resources for the benefit of all, and to maintain the promises written into the Treaties. The Treaties are the Supreme Law of the Land, and need to be the driving force rather than the ESA or Power Act. The tribes must be allowed to be active resource managers, so that progressive and positive improvements for the natural resources are a priority. Management occurs on the ground, not within mountains of words on paper.

Another major, and perhaps fatal weakness of the NPPC and its associated documents and processes, is that the NPPC represents only a planning function. Because there is no capability for implementing the Strategy, there is no assurance that even if the NPPC's plans were all inclusive, that they would be implemented.

Question 2: Is implementation of the Strategy for Salmon on track for timely completion? How well are federal and state agencies coordinating their activities with each other and with the NPPC to achieve timely completion?

Response:

There are many high priority activities called for in the Strategy. These priorities require personnel resources beyond the capacity of the Shoshone-Bannock Tribes. Without adequate funding to provide new personnel, current staff are only able to be involved peripherally. The geographic location of the Shoshone-Bannock Tribes makes us farther away from the Portland hub than any other party. Without relentless contact attempts, our staff can be easily left out of almost all activities. There are rarely contacts to the Tribes giving heads-up notifications. The Shoshone-Bannock Tribes, to the best of our knowledge, have never been contacted regarding some fundamental activities addressed in the Strategy. For example:

- Section 2.3, calls for development of recommendations for rebuilding plans by the fishery managers, with BPA funding for travel and participation. The Shoshone-Bannock Tribes are fishery managers, yet have not been contacted.
- Section 3.3A8, calls for the establishment of a Snake River Anadromous Fish Water Management Office to facilitate the use of water from the Snake River Basin, in cooperation with Indian tribes. We have yet to be contacted.
- Section 3.6C1, calls for Idaho, Oregon, Washington, and the Bureau of Reclamation (BR) to organize a water use advisory committee to recommend options to secure one million acre-feet of additional water from the Snake River Basin. Membership is supposed to include tribal interests, and we have yet to be contacted.
- Section 5.1A&B, calls for development and reevaluation of management goals and spawning escapement objectives. The Shoshone-Bannock Tribes have called for these actions under US v Oregon, which is the forum these activities are just now beginning to be addressed.
- The Section 5.2 statements concerning harvest rates and regimes fall on deaf ears. The Shoshone-Bannock Tribes have attempted intensive actions to relocate mainstem Columbia River mixed-stock harvest (except for minimal Treaty ceremonial harvest) into the tributaries that can support such harvest because of the severe inequity that currently exists. For example, in 1993, approximately 1,000 Snake River wild spring/summer chinook were harvested in the Columbia River mainstem fisheries. The Shoshone-Bannock Tribes currently have little or no opportunity for harvest of these same fish if the Tribes abide by the ESA. If the exercise of the Priority Treaty Rights of the Shoshone-Bannock Tribes are not allowed, then no other harvest should be allowed. The Shoshone-Bannock Tribes' salmon hunts have been severely jeopardized, yet other major

harvesters are allowed to continue.

- Section 6.1 calls for a coordinated habitat and production process. The subregional teams have not been formed to our knowledge. The coordinated habitat and production process has never been developed or implemented to our knowledge. We feel the subregional teams are the best next step after the individual subbasin plans were finalized in the late 1980's and the Integrated System Plan was compiled. As mentioned above, the Shoshone-Bannock Tribes are distanced from the major activities occurring daily in Portland. Those activities do not attempt the major action planning that is now sorely needed in each subbasin. The subregional forums should be activated to get down to the detailed work needed for action. The coordinated habitat and production process is also supposed to develop and submit detailed measures to help specific populations in the annual work plan. The entire Implementation Planning Process (IPP) has never been attempted (with the exception of the Habitat Scoping Group efforts in 1993), and there are annually at least two work plans submitted to the NPPC. One is the BPA Annual Implementation Work Plan, which the NPPC is just now beginning to scrutinize for Power Act compliance; and the other is the work plan submitted by the Columbia Basin Fish and Wildlife Authority, which includes the specific actions called for by the fishery managers. There is no mandate for BPA to fund the fishery managers' proposals. The coordinated habitat and production process is also supposed to identify, evaluate, and implement new production initiatives, including identification of captive broodstock demonstration projects (Section 6.2G1&2) and development of portable adult collection and holding facilities and juvenile acclimation and release facilities (Section 6.2G5&6). This has not been done, and the Shoshone-Bannock Tribes have the desire to develop proposals for these on-the-ground needs.
- Section 6.2A6 & 7 calls for the development of a wild and naturally spawning salmon population conservation policy and program. These have not been done to our knowledge, and therefore, if they have been done, did not have the required input of the Shoshone-Bannock Tribes.
- Section 6.2C3 calls for the BPA to fund evaluations of proposed supplementation projects. The Shoshone-Bannock Tribes have three supplementation projects currently proposed (Lemhi River, Johnson Creek, and Yankee Fork Salmon River). So far, all our efforts for development of the proposals and initial evaluations under Chapter C of the Integrated System Plan and the Regional Assessment of Supplementation Projects (RASP) have come from dedicated staff working overtime. Much work on these projects is needed, and the Shoshone-Bannock Tribes are still awaiting BPA funding support that the Fisheries Department desperately needs in order to get these projects on line producing fish in a way to take the fish from the concrete of hatcheries to the gravel for natural production.

- Section 6.2D3&4 allows for emergency actions for populations that are badly damaged and decreasing (BDD), and for the National Marine Fisheries Service (NMFS) to develop guidelines for emergency propagation actions. The Shoshone-Bannock Tribes have stated in writing, that following the Integrated System Plan definition, most if not all naturally-spawning populations in the Salmon River are BDD. Between the National Environmental Protection Act, ESA, and the Power Act, any propagation efforts to prevent these populations from reaching the crisis level that the Snake River Sockeye are now in are severely jeopardized. The NMFS has not developed their guidelines, and all production actions, including emergency actions, appear to be on hold (while the salmon continue to dwindle, and while the Shoshone-Bannock Tribes have submitted valid proposals).
- Section 7.3A1&2 addresses the IPP. The IPP appears to finally be recognized as never having been tried, and the commitment to use it appears to be present. However, the Shoshone-Bannock Tribes are still awaiting contact from the BPA Scoping Groups to come and defend our proposals to them. We wonder how much longer the waiting game will be played.

The bottom line is that the Power Act does not recognize the role of the fishery managers in the implementation of the Fish and Wildlife Program. The BPA (not a fishery manager) has been designated as the implementor of the Program, which leaves the true implementors of fish protection in a constant struggle to get needed actions effectuated.

Question 3: Bonneville asserts that its current financial condition will prevent or delay full implementation of the Council's fish and wildlife program. What measures can Bonneville take to ensure more stable funding for the Council's fish and wildlife program, given its wide swings in revenue?

Response:

BPA's entire budget (not just the fish and wildlife portion) needs evaluated to determine if their assertion is accurate. The BPA needs to fully fund the Fish and Wildlife Program. We believe that the Fish and Wildlife Program and the needs of the fish and wildlife resources should drive BPA's budget. We believe that the projects that the tribes have proposed should take precedence over many of those that the BPA currently funds. Also, many of the Program's objectives, as stated above, are too heavily centered on planning and analysis. The BPA funds many actions performed by other federal agencies (e.g., Forest Service, Bureau of Reclamation), Universities, and private consultants. These funds are not provided to the fishery managers to effectuate the major actions that are required to protect and recover the Salmon. And now, many of the Power Act mitigation responsibilities are fused with recovery of endangered species, which may act to divert funding from the mitigation responsibilities of the Power Act to the recovery actions of the ESA. Congressional funding for holistic, ecosystem-based resource management and recovery of species listed under the ESA is needed. This funding must not sacrifice the

hydropower funding requirements for mitigation under the Power Act.

The BPA, NPPC, and fishery managers need to agree on a fair minimum annual contribution to fish and wildlife and implementation of the process for distribution that fully includes the resource management role of the fishery managers.

The Shoshone-Bannock Tribes have requested that economic analyses of the various Columbia River System Operations Review (SOR) alternatives include acknowledgement and analysis of realistic costs, including federal government subsidies. Such an evaluation would enable the Tribes to truly evaluate the costs of salmon restoration relative to other costs. Such an evaluation should consider the wholesale power rates that the industries enjoy, irrigation discounts and the "WaterWise Implementation Plan" that is inconsistent with water use efficiency and energy efficiency, transportation subsidies, electric consumption subsidies for contractors building dwellings without natural gas appliances, etc. Maintaining discounts for any uses of the river does not make economic sense given the fact that BPA is in debt and is plagued with budget deficits. The Shoshone-Bannock Tribes have also urged that any economic analyses include recognition of the inestimable costs (monetary and spiritual) to Shoshone-Bannock Tribal Members in terms of lost fisheries, restrictions and curtailments of sacred traditions, and social and economic suffering caused by the existing operations of the hydroelectric system.

Question 4: What can be done to facilitate water conservation and other changes in regional water management to provide increased flows for power production and salmon recovery?

Response:

The Shoshone-Bannock Tribes have learned of BPA's efforts to execute a contract with Northwest Irrigation Utilities to extend the Irrigation Discount. Extending the Irrigation Discount does not favor water use and energy efficiency, and negatively impacts many natural resources. This effort, on behalf of the BPA, falls into a broad category of philosophies that are vastly different between the Tribes and BPA. The Tribes view goals such as reducing total energy consumption and water use while restoring and conserving the natural environment as paramount to the BPA directive. However, it is painfully clear that BPA does not even understand this type of goal, let alone trying to embrace it.

The Shoshone-Bannock Tribes, and other federal agencies (e.g., U.S. Fish and Wildlife Service) have tried unsuccessfully to include the Snake River above the Hells Canyon Complex in the scope of the SOR. The failure to incorporate the multi-purpose operations of the middle and upper Snake River and non-federal projects in order to meet fish and wildlife needs is unacceptable. Similarly, we question how projects in Montana and Canada will be treated. If all these areas are simply treated as a "hypothetical pool" then the full disclosure of possible effects to fish, wildlife, and cultural resources is prevented. The review should include the water that is stored and released from projects throughout the entire Columbia River Basin

System. The SOR Scoping Document (May 1991) states that "the results of those meetings were compiled into a comprehensive data base for use by the agencies in developing the scope for the review..." (page 7, emphasis added). Compare this statement with Appendix 2: Summary of Public Comments (page A2-1, Scoping Document) which states "Geographically, a three-to-one majority of commentaries said an expanded focus was needed, that a comprehensive review of system operations was impossible without looking at the entire system" (emphasis added). The Shoshone-Bannock Tribes question whether limiting the geographic scope, despite the overwhelming public and agency input to the contrary, constitutes pre-decisional bias and determination of outcome.

Groups such as the Committee of Nine (the nine major irrigation districts in the upper Snake River) need to be reeled in. The supremacy of federal jurisdiction and inherent tribal responsibilities to the natural resources need upheld over the state and private sectors. The Committee of Nine appears at times to have the Idaho Water Resources Board and U.S. Bureau of Reclamation tied around their fingers. The Committee of Nine attorneys are advising their clients not to free up "even a cup of water" for flow augmentation, because it would indicate that not all of the water they have water rights for is needed. And, if any water is to be left in the river by the Committee of Nine, for salmon flow augmentations, the federal government purchasing price will be astonishingly higher than what the same irrigators pay for it.

The solution is really quite simple. Examine the upper and middle Snake River during 1992 - the lowest water year on record. There was no widespread famine or economic collapse. In fact, some crops supported record harvests. Examine how the irrigators, IDWR and BR came up with creative solutions to provide irrigation water through the season. Use 1992 as a baseline for irrigation, and any water above that amount could be left in the Snake River for the Ribbon of Life the River once was. These flows will not just provide water for electricity production and salmon flows in the lower Snake and Columbia rivers, but will also provide aquatic resource protection in the middle and upper Snake River.

Question 5: Are existing institutions and institutional arrangements at the state and federal level adequate to implement salmon recovery plans? What improvements should be made to ensure better regional coordination among the many federal, state, tribal and private entities that must work together to achieve salmon restoration? In particular, the following alternatives have been suggested for better implementing salmon restoration plans. Please comment on each:

- a) Providing additional public involvement in existing federal processes including review of annual operations:

Response:

The federal and state processes are mostly open to the public. The NPPC process is so open to the public that the master planning process oftentimes puts fishery manager solutions on hold.

The downside of the public involvement process is the introduction of non-biologically sound opinions that cause political solutions over good science. The upside can be that, if society deems the costs of hydroelectric power generation at the expense of the fish and wildlife resources to be too high, and if society agrees to forego some monetary benefits of cheap power, then the cost of restoring the fish and wildlife resources, including fundamental changes to power production facilities and technologies may receive the priority that the natural resources demand.

- b) Changing the membership structure or authorities of the Council:

Response:

Tribal governments lack representation on the NPPC. The NPPC, perhaps because of their appointments by state governors, have claimed that the NPPC does not have a trust responsibility to the tribes. However, because the Power Act is a federal act, mandated by the same government that has signed Treaties with the Indians, and because the NPPC is established by the Power Act, the NPPC does have a federal fiduciary responsibility to the tribes, regardless of who appoints the individuals on the NPPC.

- c) Incorporating salmon recovery measures into the Pacific Northwest Coordinating Agreement:

Response:

The PNCA deals with the utilization of water for the generation of power. The incorporation of water use for fish into the PNCA would aid with regard to mainstem flows. Therefore, this is a good strategy.

However, there are many other impacts to the salmon that are not exclusively water related, and therefore, the PNCA would not serve as a forum for implementing those actions (e.g., habitat improvements, irrigation diversions, production actions, harvest rates and regimes). The NPPC is currently the main clearing house for all mitigation actions of the federal hydrosystem, and the US v Oregon forum deals primarily with harvest and production actions. What is missing is a central forum for dealing with federal and nonfederal power production and habitat (private, state, and federal) activities. The best solution would be to have the fishery managers manage the fish, and the hydroelectric managers manage for power, and the irrigators manage for irrigation, etc.

- d) Adopting a new agreement or creating a new regional entity among BPA, Corps of Engineers, the Bureau of Reclamation, the Council, and others to administer annual river operations:

Response:

The Power Act is incomplete with regard to actually mandating mitigation and recovery actions for the fish and wildlife because the fishery managers are not mandated to plan and implement those activities. Congress should authorize some forum with full authority to manage river operations in such a way as to assure the enhancement of fish and wildlife resources. Fish and wildlife resource protection is the priority that all other uses of the rivers need to adhere to. A major concern of the BPA and the BR and Corps (Operating Agencies) is that they seem to feel that they are mandated (somewhere) to balance the multiple uses of the Snake and Columbia rivers in their hydrosystem, flood control, and navigation operations. The Shoshone-Bannock Tribes maintain that the Operating Agencies are not mandated to integrate all multiple uses of the river system under their hydrosystem operations.

- e) Transferring a lump sum in fish and wildlife funds from BPA to fish and wildlife agencies to be administered separately by those agencies for salmon recovery, while providing accountability for the results of the work funded:

Response:

This alternative needs to include the tribes along with the "agencies" as the fishery managers. The following response assumes that tribes are included in this alternative. The savings in overhead would be significant, and the appropriate activities that are required on the ground would stand a much better chance of occurring rather than endless stacks of words on paper. An allocation formula between the different fishery managers could be successfully structured, as the fishery managers have successfully ranked the needs of the fish and wildlife resource in past proposal efforts. There is a history of the agencies and tribes successfully wrestling with these difficult allocation issues in the recent past - witness the management forum under the auspices of the Salmon and Steelhead Conservation and Enhancement Act and the annual work plans developed by the members of the Columbia Basin Fish and Wildlife Authority. The problem has been more with BPA's unwillingness to fund those projects which the CBFWA have deemed important. If the IPP was to be effectuated, the process for collaboration among the BPA and agencies and tribes could be resolved.

Through the thorough technical reviews that the fishery managers can do best, the resolution of any differences stand the best chance to be done based on a scientific rather than political basis. The fishery managers know how to implement the Fish and Wildlife Program. However, when the fishery managers go to the BPA for funding, BPA seems to think that BPA (or their hired consultants) can do the job even better. The BPA funds very highly paid consultants, who rely heavily on computer models and obscure evaluation techniques. The consultants spend an inordinate amount of the BPA budget simply arguing the solutions that the fishery managers have drafted. This process has gone way beyond unbiased third party review. The bottom line is that the BPA should fund the fishery managers to protect and enhance the natural resources, with thorough accountability (reports) through which a determination of success can be made.

- f) Legislatively creating a new entity or designating an existing agency with authority to mandate salmon recovery actions:

Response:

The multiple organizations that are currently charged with the mandate have the capability to achieve the needed recovery. Every federal agency is charged under the ESA to conserve the species in peril. The amazing fact is the vast number of federal agencies that have on their staffs, fisheries and wildlife biologists. The different agencies all seem to have different directives, and thus the biologists argue "company" positions, often times with insufficient ethics to do what's best for the resource. Perhaps an entity like the proposed National Biological Survey, that would put the natural resource protectors all under one roof would help prevent the "scientific" discrepancies from blocking meaningful recovery actions.

The two major "drivers" for salmon protection in the Pacific Northwest are the US v Oregon Columbia River Fish Management Plan and the Power Act's Fish and Wildlife Program. A solution to the failures of these forums is to provide detailed habitat (including the hydrosystem) protection under the US v Oregon plan, which currently is being held hostage by the major sources of salmon mortality - the hydrosystem. The other action, that if taken in concert with the teeth that the US v Oregon forum needs, is to delegate the NPPC to have the fishery managers determine the action plans necessary to carry out the Program, with BPA funding.

Thus a legislative mandate to involve the fishery managers (agencies and tribes) as the planners and implementors of the Fish and Wildlife Program is a major step towards the solution. Another major step would be to have the operating agencies manage their operations in compliance with the needs of the fish and wildlife resources.

Question 6: Have BPA and other federal entities met federal treaty and trust responsibilities to the Indian tribes in managing the resources of the Columbia River? What, if any, additional steps should be taken to improve federal relations with the tribes?

Response:

Federal entities have not met their trust responsibility to the Shoshone-Bannock Tribes, and we question whether they are even aware of the responsibility. This is not just true of the Operating Agencies (BPA, BR, and Corps), but also with the Forest Service and Bureau of Land Management and their oversight of mining, logging, and grazing management. This is also true with the fish and wildlife resource managers (U.S. Fish and Wildlife Service and National Marine Fisheries Service) as witnessed by the salmon production inequities of the Mitchell Act. The vast majority of the salmon production from hatcheries has occurred below Bonneville Dam in the Lower Columbia River. This negatively affects the recovery of the Salmon in the headwaters of the Salmon River in at least two major ways. The harvest rates that the lower Columbia River production supports impacts the less numerous Salmon River stocks that are

mixed in with the harvest. And, the production expenditures needed to maintain and operate the existing facilities in the lower Columbia River block attempts to construct new facilities in the headwaters. The production needs to be brought upriver, and because the headwaters habitat can still support successful natural production, hatchery practices need to be modified to allow the salmon to go from the concrete hatchery habitat to the gravel of their ancestors.

Summary:

Species by species-based approaches to managing the natural resources, especially as required once individual species such as the Stanley Basin Sockeye are deemed "endangered" by the federal Endangered Species Act, are a far cry from the management that is needed to prevent an uncontrollable onslaught of future listings of endangered species. The species by species-based approach to resource management must continue where predicated by necessity.

However, holistic, comprehensive, ecosystem-based approaches to the drastic improvements needed to the passage corridors, and the fish and the wildlife habitat are (and always have been) the requirements of the managers of the Columbia River Basin natural resources - in order to uphold the promises made to Indian Tribes in the various Treaties made with the U.S. government. In order for the fish to be present as they originally were, HABITAT, especially river flows and fish migration passage, needs to support the fish - and not just be a commodity for the short-term economic gains for society.

The Shoshone-Bannock Tribes are faced with a real dilemma. The habitat in the Salmon River country is still in moderately good condition, primarily because of the vast amounts of land that are now contained in wilderness areas. Granted, these conditions are only considered to be in good condition when compared to the thorough devastation of other habitat that has taken place elsewhere in the Columbia River Basin, and as based on the potential for anadromous fish production. Extensive logging, mining, grazing, and irrigation practices have claimed their toll on the Salmon River country like elsewhere in the Columbia River system. However, there still exists many areas of beautiful clear water, massive gravel beds, and deep cold pools. Yet, where the good habitat exists, there is less than 10 percent of the Salmon that could be supported by such habitat. The Shoshone-Bannock Tribes are involved to the extent possible with efforts to reform hatchery practices in order to utilize concrete habitat to recover the Salmon populations to and from the gravel and deep pools that are now vacant. But now, many experts are saying that the Salmon that come from the concrete hatcheries can not be released into the habitat because they will hurt the wild stocks. Therefore, the majority of the efforts to rebuild the weak upper river runs needs to remain with fixing the dams and returning the natural flow pattern of the Columbia and Snake rivers.

The mainstem Columbia River dams are the largest harvesters of the Salmon that come from the Salmon River country. Less than 150 years ago, the Shoshone-Bannock Tribes harvested tens of thousands of Salmon. Now we harvest generally less than 100 a year. The dams and the dam-created habitat kill 5 million to 11 million Salmon a year. For every Salmon that is hunted

by a Shoshone-Bannock Tribal fisherman there are 50,000 to 110,000 killed by the dams. Practically all the harvesters in the Columbia River system downstream from the headwaters of the Shoshone-Bannock Tribes take an unfair share of the Salmon resource compared to our own diminished harvest. Therefore, the Shoshone-Bannock Tribes have been forced into a situation where attempts to ensure safe passage of the migrating salmon affect many different users. Our most desperate action was filing the petition to list the Snake River Sockeye Salmon under the federal Endangered Species Act. We sincerely thought that recovery efforts for the Sockeye would benefit all the Salmon River anadromous fish.

We as Indian people look to our brother animals as things of our "Creator," not as something without a spirit, not as commodities. From the time of the Treaties to today, is a little over a century and a quarter. Prior to the Treaties, this land and its resources was plentiful, the forests of different kinds of trees; the waters in the rivers, streams, and lakes were clear, cool and pristine, with an abundance of fishes, both anadromous and native; the different types of wildlife and birds were also in abundance within this great habitat. It was this way for thousands of years. Today, less than One Hundred Forty years after the Treaties (which promised much) were signed, we have seen the resources, which was plenty for all, become not enough for everybody.

A fair portion of the funding required for holistic, comprehensive, ecosystem-based resource management must come from Congress, as must the financial support for recovery of listed species. This funding must not sacrifice the hydropower funding requirements for mitigation activities.

We the Shoshone-Bannock Tribes, as well as the other Tribes need to be heard and our management philosophies such as the return of the natural flow of the Columbia and Snake rivers, supplementation, hatchery practice reform, protection and restoration of robust riparian areas and healthy habitats, and a strong reverence for the resource (as resource, not as a commodity) need to be intimately embraced if the resources are to be left for the future generations.



September 20, 1993

Representative Peter De Fazio
1233 Longworth HOB
Washington, DC 20515

Dear Congressman De Fazio,

Thank you for the opportunity to testify before your committee in Boise. Unfortunately it is an invitation we are unable to accept since a fishing season has been set during the time of the hearing, and our other spokespeople, myself included, are unable to clear calendars for travel to Boise. Therefore, I am including comments here I wish to become part of the record.

Salmon for All has existed since 1958 as the legislative and educational arm of the lower Columbia River's commercial fishermen and fish processors. The organization has 850 members nearly distributed equally between Washington and Oregon from the mouth of the river to Bonneville Dam. Associate membership includes professionals, fish markets, restaurants, marine suppliers and others whose incomes, all or in part, depend on viable commercial fishing.

In pursuing several of the Northwest Power Planning Council's salmon recovery programs related to harvest, this organization and BPA have entered into contractual agreements. We do, however, feel the need to offer some constructive criticism about BPA's role in salmon recovery, and about the recovery process itself.

Let me start by saying we, the non-tribal Columbia River commercial fishing industry, have been treated with respect by BPA and its staff. Randy Hardy has met with us on several occasions as we tried to work out the details of a commercial license "lease" that would have compensated those fishermen who chose to forego their opportunity to catch fall

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 Salmon for All

chinook. The fish not harvested would have gone to a "fish bank", been provided harvest protection on their continuing migration, and ultimately gone to the spawning grounds. In addition, BPA allocated significant staff hours to the resolution of this leaseback program.

The "lease" was an element of the salmon recovery plan initiated by the utilities with the understanding they would fund it. Soon after the recovery plan was adopted, several meetings were held with the Pacific Northwest Utilities Conference Committee to determine the ground rules under which the "lease" would be implemented by the fishermen and the harvest management agencies, and how PNUCC and its members would fund the program. Following about three such meetings, PNUCC excused itself as a player, and the task along with the funding fell to BPA.

We have been told by sources close to the politics of salmon recovery that this was a planned strategy by the utilities designed to put additional pressure on harvest, to make it appear that harvest was a bigger problem than it was, and to make it seem fishermen were willing and eager to put a price on their fishing opportunities. We were also told that the utilities would use the "lease" as a public relations tool to tell the public that "in order to save fish you, the tax-paying and rate-paying public, are having to pay fishermen not to catch fish".

In all candor, we have never felt that attitude coming from BPA. They, and we, approached discussions about "lease" with the attitude that, as an element of the regionally adopted recovery plan, we had a responsibility to try to make it work. Also, in all candor, certain Northwest groups have clearly tried to make harvesters out as the guys wearing the black hats.

Approaching "lease" created much stress within our commercial fishing community. Some argued that negotiating for "lease" would send the wrong message about who the harvesters were and what had been their role. Remember, information developed at the Salmon Summit indicated that if all harvest of the Columbia River fish stocks listed under ESA were discontinued, the stocks would still not recover. Harvest was not responsible for the demise of salmon, and would play no major role in the recovery. Faced with that reality, harvesters considered for a brief time

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Salmon for All

pulling out of the Summit, but decided to stay when told if harvest was not on the table there could be no agreement for salmon recovery. Our presence was a political necessity not a biological one.

Other fishermen argued that the recovery plan agreed to compensate the losses of those who went beyond the call of duty to help save the salmon runs. Since "lease" was to be voluntary, they saw it as a business option to be considered. Fishermen have been paying the price for salmon stock deterioration since 1936 and have had three bad fishing years in a row. Many are struggling financially. The temporary business option that "lease" offered was attractive to some, but not beneficial to processors and support industries.

License leasing was unsuccessful because the Tribal leaders would not guarantee to BPA that fish "leased" in the lower river would be allowed to pass through upper river Tribal fisheries. We suggested to BPA early in 1992 that the Tribes be included in discussions regarding license leasing since their participation was instrumental in the success of assisting salmon. BPA chose not to do that, and ultimately the '92 negotiations broke down because Tribal leaders said they were not given adequate time by BPA to explore the options and reach a decision. In '93, Tribal members still did not participate in our meetings, although BPA indicated they were meeting separately with the Tribes. '93 plans also ended abruptly when Tribal leaders would not guarantee fish passage. We have been told that, in part, they were offended because BPA did not treat them with the dignity they felt their sovereign nation status dictated.

After two and a half years of negotiating, trying to put together one small element of the salmon recovery plan, license leasing and the small compensation that would have accrued to the cooperating fishermen has been set aside and given little hope for future resolution.

That part of the plan called "leaseback" should have been called "leaseback/pass through" so it adequately, and equally, focused attention on the two determinant factors that would lead to success. BPA worked diligently with us, but it appears needed to do more to understand the Tribal perspective and to communicate better with the Tribes.

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Salmon for All

We have been disappointed that BPA did not include in its current budget projections funds for a '94 or '95 leaseback program. Until such time as leaseback is officially eliminated from the salmon recovery plan, it seems to us that a funding source ought to be budgeted. Without that, I believe we have every right to feel that our needs are being given second rate consideration, or no consideration at all.

In fact, no element of the salmon recovery plan that offers immediate mitigation for losses accrued by the commercial salmon harvesters has been funded. Only those elements with long range implications - net pen rearing and releasing in the lower river, development of terminal fisheries, gear modification and testing for greater selectivity - have been given any funding. This focus on our future, while admirable, does not give any immediate relief for the present which is choking the life out of lower river families and communities that rely on salmon harvest dollars. Big dollar items like increased poacher enforcement and squawfish eradication are viewed as a slap in the face of fishing families which have demonstrated a willingness to participate in recovery of salmon long before they were listed under the ESA, and yet are unable to access mitigation for their participation.

There seems to be an attempt to selectively implement elements of the salmon recovery plan. Since it is predominantly the federal government and its agencies which manage the river and administer the recovery plan, all federal agencies, including BPA, must be held accountable for each passing day that offers no significant progress toward salmon recovery. Without improved passage for returning adults and outmigrating smolts, there can be no salmon recovery. A strong US/Canada treaty is needed to protect returning adults from overfishing by Canadian harvesters. Only the federal agencies have the authority to fix these things.

The harvest of salmon was immediately altered three years ago by the states which manage that activity. Fishermen were the first to feel the impact. Yet, we understand that the federal responsibility for screening of dams will not be completed in this century, nor will the proposed drawdowns.

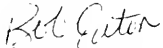
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Salmon for All

The expectations for recovery and the timing for implementation seem skewed to protect big business at the expense of little business. The fishing families, who after all are part of the Northwest's economic backbone of small businesses, do not feel they are being treated fairly. That could change with implementation of a plan that provides them with modest, yet promised, mitigation for their losses.

The business of hydroelectric generation has many costs. One cost allowed to go unmet for decades was the loss of salmon. We and many others have pledged support in finding solutions to the problem. Our only hope is that the federal government will act aggressively, fairly and compassionately to remedy the ills visited on the Columbia and its fish runs. If BPA is not given the authority and budget to get the job done, then Congress better beef up the NMFS budget to show the Northwest Region it is determined to reach solutions to this problem through one of its agencies.

I appreciate the opportunity to provide testimony and stand ready to pursue this further as needed.

Sincerely,



Bob Eaton
Executive Director

CC: Representative Elizabeth Furse
Representative Jolene Unsoeld
Randy Hardy, BPA
Ted Strong, CRITFC

Dick Woodworth
Fish Passage, Inc.
825 E. State
Boise, Idaho 83712

September 22, 1993

The Honorable Peter A. DeFazio
Natural Resources Committee
U.S. House of Representatives
Washington, D.C. 20515

Dear Congressman DeFazio:

We are greatly disappointed that we were not allowed to testify at your public hearing. The first public word appeared in the Statesman newspaper on September 21st in Boise.

We have been working on the Boylan Pipeline Concept since the summer of 1991. I am enclosing copies of presentations I have made to the Northwest Power Council and several other groups responsible for fish passage on the Columbia River System.

To date we have found no unsurmountable obstacle in using the Boylan system. Recently Morrison Knudson Engineering in Boise has joined us in drafting a proposal to test the systems. Oregon State University and the University of Idaho are also working on the proposals.

If the proposal proves feasible, it would eliminate virtually all of the impacts on other industries, plus predation on the smolt by squawfish and other predators.

One comment we got from all groups that looked at our original proposal was "how are you going to get your hands on the smolts before they reach the first dam"? We believe we have that problem solved. We are working with the Sonalysts, Inc. out of Waterford, Conn. who have been using sonic guidance for years to keep fish out of turbines, at Power plants and to herd fish for other reasons. Each family of fish responds to a specific sound frequency, through their ear structure.

Once that frequency is found fish will not cross that sound barrier.

Currently Sonalysts is working with Morrison Knudson engineers who are building the Boston Tunnel. Two or three times a day Sonalysts herds the fish 1200-1500 feet away from the blasting area and MK blasts away rocks and debris from the tunnel area. To date they have found no fish mortality at the site.

We believe that with this equipment we can gather and transport the smolts to the Columbia River Estuary in 5-10 days without disturbing any existing structure or business such as Barge Industries, the Aluminum Industry, the power plants, or any of the recreation businesses and no predation.

This is a concept that needs to be tested. Governor Andrus of Idaho has said "if there is a better plan than run of the river, we need to see it."

The Idaho Fish and Game Commission has said they have no objection to testing the Boylan plan. We believe you cannot afford not to look at a plan that will probably cost only 10-20 percent of other plans and could be completed in 10 to 20 percent of the time of other proposals. Time is running out.

Sincerely,

A handwritten signature in cursive script that reads "Dick Woodworth". The signature is written in dark ink and is positioned below the word "Sincerely,".

Dick Woodworth
Fish Passage, Inc.

FISH PASSAGE, INCORPORATED

SMOLT TRANSPORT SYSTEM CONCEPT

Thanks for the opportunity to present a review of the Boylan Pressure Pipeline Smolt Transport system to Morrison Knudsen. This presentation has been made to the NW Power Council and accepted. The concept has been advanced to the current stage where it is expected to be examined for feasibility as a Council measure listed under transportation III, 3, A, 9 of the Doc 1991 Amendments to the Fish and Wildlife program.

Briefly, the concept is to move Smolts continuously through reservoir slack water within a thin-wall plastic pipe submerged and tethered underwater. At each dam the Smolts would be transported through the dam structure in existing Smolt bypass facilities and reintroduced into another pipeline reach immediately downstream. Pumps would move water and fish at about 1.5 to 3 M.P.H. Fish would not make contact with pump or pipeline parts. Total transit time from lower granite to below Bonneville Dam could be between 4 and 8 days depending on velocity and resting requirements.

Pipeline diameter would be 24" or larger if Smolt density considerations warrant.

The biological concern over moving the Smolts this long way will require testing and proof of feasibility. We propose a sequence of lab and field tests to this end. Engineering and better cost information would be obtained prior to a decision to build a full-scale operational pipeline reach.

We have discussed this concept informally with a number of individuals experienced in the general area of fish transport and no non-resolvable issue has been identified that would eliminate feasibility. The Columbia Basin Fish and Wildlife authority has expressed pessimism but no basic impediment to a pressure pipeline as an alternative Smolt transport means. We have not identified a significant length pressure pipe fish transport system that is functioning as a reference for information.

The costs and effectiveness of alternative means of Smolt transport methods including barges, tanker trucks, canals, pipelines, and enhanced flow rates through draw down and or supplemental storage releases all should be compared. It may be that a combination of methods will turn out to be most desirable.

We are convinced that a research and development program is warranted to determine the biological, engineering and economic feasibility of the pressure pipeline concept. A combination of literature search, lab work and field prototype tests will be needed and we have suggested four phases of work in our report.

A brief review of the concept may be useful to you.
Figure 1 slide

- . Entry to exit. 20-70 miles (one reservoir)
- . Floating terminals to accommodate reservoir changes
- . Discharge to and from existing dam collection systems
- . Shore supplied pump modules - 5 mile space
- . Multiple pumps within modules for reliability
- . Automatic clean out valve
- . Provisions for exchange of water, food, air at modules
- . Remote operation and indication of system condition
- . Designed for underwater repair

A prototype test loop, probably full diameter, of 5 miles total length should prove out previous lab work and provide a stress test by allowing multiple passes around the loop. Engineering tests such as full scale pump efficiency could be confirmed. Figure 5

In our exploration of suppliers who could contribute to the pipeline concept we came in contact with Mr. Dolat of Sonalysts. They have excellent experience in designing and installing sonic fish directing installations in the Great Lakes and elsewhere. Their capacity could be important to collection and directing efforts in the northwest as a part of or independent of the pipeline effort.

End of Presentation

For Discussion

Dick - Q and A - See rough outline, change and add as you see the need.

Will Smolts tolerate the repeated pressure change across successive pump modules?

- . Pressure change 18 PSI for 10 mile section with 24" pipe at 2 1/2 ft./sec
- . Tests will be needed - a key item
- . The pressure change can be reduced by closer pump spacing or lower velocity in pipeline
- . Pump module depth or pump distribution along the module could modify pressure impacts

Can Smolts stand the stress of a 270 mile pipeline ride? Will abrasion be a problem?

- . Abrasions unlikely with the very low velocity near the pipeline walls
- . Repeated trips around a test loop should show if there is any problem
- . Rest stations might be needed

Will pump impeller damage to Smolts be significant?

- . Full screening from pump impellers should be straight forward, if needed
- . Pump efficiency is not critical and fish protection would be given priority
- . Fish would be introduced only after a slow velocity build up over time

Will resting areas be needed?

- . Velocity in P.L. may determine this in part
- . Ponds or net pens or other impoundments could be added

Will debris be a problem in the line?

- . Screens would keep out the larger materials
- . Periodic automatic flushes from the bottom of the P.L. would carry out fine materials
- . Flush out ports would be screen for fish

What if the P.L. breaks - escape of Smolts?

- . Repair by dive teams would replace pumps, pump modules or line sections
- . Smolts lost to the reservoir will continue on to be picked up at the dam screen collection system already in place

What of collection systems?

- . The P.L. would capitalize on existing and improved collection systems at dams and perhaps a new Lewiston vic collector

What measures will be taken to insure the proper water mix?

- . The majority of water will be as found at the entrance terminal, just below the dams(s)
- . Alteration of this mix could be accomplished at each pump module by adding and subtracting water.

What of food requirements of the Smolts in transit?

- . If there is a food requirement it could be added at the pump modules
- . Test loop operations could show if food is needed for various expected trip durations

Will predation be a serious problem?

- . If all Smolts are discharged ^{at} the same point?
(Probably)
- . It is expected that multiple, rotating P.L. discharge points below Bonneville Dam would greatly reduce predation.

What installed cost per mile do you expect for a full sized system? (24")

- No ROW costs

What power consumption?

8,200 kw (at 40HP/mile and 10% pump eff)

What water consumption?

(24" line at 2.5'/sec over 120 days) (2,000 A.F. or nil)

What "packing factor" in P.L.?

- . 24" line at 2.5'/sec vel
20,000,000 fish over 90 days
1 fish per 22 gal ave
- . Field test could help answer importance

What about homing instinct after the big trip?

- . A combination of field and test loop tests
- . ? Toughest of all to determine

Report and Proposal to Study
the
Boylan Smolt Transport System

Introduction

The current losses of salmon and steelhead smolts migrating down the Snake and Columbia Rivers is estimated at up to 15% per dam. With eight dams and reservoirs to navigate, smolt survival to the ocean is unacceptably low. Means to improve their survival have or will include screening and bypassing the powerplants, reducing transit time by improving flow velocity, reducing predation, and continuing barge or tanker truck transportation of smolts downstream. This report addresses a closed conduit pipeline system to reduce transit time and reduce other hazards to the smolts.

The Need for Improved Transport

The hazards to smolts during downstream migration through the slack water of reservoirs, powerplant turbines, supersaturated water below dams, and predator-infested waters are the major causes of their reduced populations. Some species are near extinction from these impacts, along with overfishing.

Efforts to reduce smolt damage at powerplants is centered on new or improved screening and bypass systems. It is assumed this program will continue. The low water velocity in the eight reservoirs (about 270 miles of water) adds many days to the natural migration time; and the resultant losses are

apparently in the order of 10% per reservoir. High natural runoff, deliberate upstream storage-reservoir water releases, and now reduced reservoir operating levels during the smolt migration season all will contribute to higher water velocity and, presumably, better survival. However, these measures may also result in significant costs to power production, agricultural water supplies, and navigation and recreation (the latter two, in the case of altered reservoir operations). Reducing the transit time by collecting and transporting the smolts downstream by barge or truck has given good results with some species, but appears to disorient others and result in poor adult return rates. Alternative transportation is currently being examined by a small group who are concentrating on the open channel or canal approach.

A pipeline transport alternative is described in this report. This alternative will require a series of tests and explorations to validate its feasibility from a biological, engineering and cost standpoint. Water velocity for the pipeline system could be in the range of 2 to 4 feet per second or 1.4 to 2.7 mph which would result in water particle transit times of between 4 and 8 days for 270 miles. There is also a potential for the combined application of the canal and the pipeline methods of transportation.

Features of the Proposed System

The key feature of the Boylan system is a clear plastic pipeline provided with flotation and anchoring at a fixed elevation within the river-reservoir system. Submerged pumps would be strategically placed along the line to overcome pipe friction losses and provide the energy to accelerate the

pipeline water column. Injection of air or oxygen, food and exchange water could also be provided at intervals along the line. Ejections of sand, silt, detritus and exchange water could also be provided.

It is envisioned that a reach of this pipeline would be from dam to dam with inspection and small resting terminals at the sending and receiving ends. The collection and transport at the dams would be integrated with the existing and planned screening and collection systems. Discharging of fish would be below Bonneville Dam at a single point or distributed over several miles by a pipeline with turnouts.

Figure 1 shows the overall concept of the system and Figure 2 the details of the pipeline suspension system. Figure 3 shows a pump module and Figure 4 shows the exit and entrance pipeline terminals.

If smolt losses between Lewiston and Lower Granite Dam prove excessive based on current testing, the pipeline reach could be extended upstream to a new collection facility near Lewiston. It is expected that the need for this new facility will be the subject of a separate study. Also, if further experience shows smolt damage due to passage from the dam collection channels to the tailwater facilities is excessive, a 10 cfs fish ladder dedicated to smolt transport to the next pipeline terminal could be incorporated into the design.

Need for a Development Program

Several concepts behind this plan have not been reduced to practice and a

search of existing experience, application of theory and modeling, prototype testing, and the application of seasoned judgment is needed before the feasibility can be confirmed. These key factors and suggested means to obtain answers follow:

Biological

The smolts willingness to enter and stay in the transparent pipeline should be greatly improved over opaque pipelines. Final proof of this would be with a prototype test but preliminary work could be with a smaller test section. Smolts ready for downstream migration would be needed for the final proof but other species might be suitable for earlier testing.

The effects of the pressure change across a pump module can be reduced by having a larger number of smaller pumps distributed down the pipeline. For example, the friction loss which must be accounted for per 10 mile section of 24" plastic pipe, flowing at 2.5 ft/sec or 1.7 mph would be about 42 feet of head or 18 psi. If this change is too large for low smolt mortality, a closer pump spacing could be provided.

The possibility of abrasion or other contact damage to the smolts is somewhat offset by the natural velocity profile across a flowing pipe where the velocity at the center is the highest and drops off sharply near the wall. Tending the other direction would be the pressure change through the pump module which may cause the smolts to rise in counteraction to the increase in pressure. A continuous prototype test loop of near operational size and pressure change may be needed to obtain facts on these questions.

The allowable density of fish in a line with uniform flow is another factor that will impact the feasibility of this concept. For example with a 24" line flowing at 2.5 ft/sec. or 3,500 gpm and an input of 20,000,000 fish over 90 days the average water per fish would be 22 gallons. The importance of this is unknown but high density is suspect as a problem for some species at least in a near zero-flow environment of a fish tanker or barge. Field experiments may shed light on this item.

The need to add food or oxygen to the pipeline is unknown but provision to do so would not be prohibitive in a prototype or final design. Dissolved oxygen monitoring would be a part of the final design.

Orientation and homing urge after a pipeline transit of several days may be the most difficult to answer and may take a long duration, large test program. A simple initial test for this factor should be a priority matter!

Mortality rate in the pipeline system can be determined in the same manner as with tankers or barges. A prototype test should show what to expect for the full application.

Water mix or exchange along the pipeline could be from none to 100% or more per reach if the pumps are sized to accelerate the added water and still overcome the friction losses.

Direct collection and injection of major tributary stream smolts would be

possible if there is a biological advantage over picking them up at the next dam downstream.

If rest stops of large volume are needed, they could be constructed near shore away from the dams and either dikes and screens or curtain nets used to form an enclosure. Terminals for incoming and outgoing pipelines would be needed along with docking and baffling to create attraction currents to guide smolts back to the pipeline after a rest.

The relationship between pipeline velocity, needed rest areas, willingness to travel day and night, and how the species differ will need biological and engineering attention in arriving at a practical design.

Engineering

The suspension system would keep the pipeline at a depth satisfactory for the smolts and below the expected reservoir water fluctuations. The pipeline would be free between anchor points and anchor point spacing would be dependant upon further engineering work and specific site condition with special attention to reservoir water velocity. The pipeline should be very near neutrally buoyant but to insure stability, flotation will be needed to keep the cable suspensions under tension at all times. The effect of air or gas collection and differing water density due to temperatures should be addressed.

Pipeline wall thickness would be determined by maximum operating pressure differential and over pressure relief values settings, along with the stress

of installation and external forces acting on it.

Pipeline plastic material would be selected on cost, durability, life, freedom from slim and algae growth buildup and other factors. Polybutelene looks promising.

Pump design must consider that no fish damage is allowed due to impeller contact with the smolts, and an effort should be given to distributing the pressure changes within a module to reduce damage to fish. At the same time reasonable pump efficiency should be obtained. These trade offs will call for pump evaluation tests which could proceed in a hydraulics laboratory in advance of field pipeline tests.

This system will have a ready backup in place with the powerplant screening and collection facilities. If any pipeline reach becomes inoperable for any reason, the smolts would be discharged to the reservoir. Pumps within a module would be in multiple units and failure of any one would not cause pipeline shutdown.

System data such as flow, dissolved oxygen levels and pressures will be transmitted to key operation points, probably the powerplant control rooms. Control of pump motor speed, valves and other items would also be remotely operated and indicated. Computer control of pipeline operation would be provided for all reaches.

Breaks or failures would require underwater repair. Unitized repair kits would be ready for this contingency. Divers trained in the techniques would carry out the work.

Since there is a long period of non-use it should be possible to thoroughly rinse the line and even inject chlorine or other algae cleaning agents that would be acceptable for river release once the line was cleaned.

Costs and Construction

Costs of feasibility study, design and construction are not known for this system but considering the alternatives this system should be competitive since the right-of-way cost is low or nonexistent, the plan would utilize existing facilities to the maximum, and power and water needs are modest. An early priority for engineering review of this plan should scope the construction costs.

It is envisioned that through modular design of pumps and line sections much of this construction would be done on shore and then barged and located on the alignment. Field coupling of pipeline sections would be simple and achievable underwater.

Power losses for water lost to generation would be nil. Pipelines use would be about 2,000 acre feet for a 24" plastic pipeline with velocity at 2.5 ft/sec, operating for a 120 days. Power consumption for this pipeline will be greatly dependent on pump efficiency, but with hydraulic loss per mile at 4.0 horsepower and a pump efficiency of 10%, the electric input would need to be

about 40 hp per mile or with 270 miles of pipeline an aggregate of about 11,000 horsepower or 8,200 kw.

Proposed Program

Phase I

The initial work on this transport system would be for a small team of biologists and engineers to review the concept for feasibility and cost. Key questions regarding system, life expectancy and other matters would be answered.

Phase II

If the initial review is positive, a prototype design and test program would be developed to outline laboratory and field tests requirements needed to further confirm and/or modify program. Fisheries agencies and operating agencies would be involved in this and subsequent phases.

Phase III

Next the field and laboratory tests would be funded and carried out. The prototype test loop would be installed and tested (see Figure 5). Provided all indicators - biological, engineering and economic - are supportive, the Program would move to Phase IV.

Phase IV

Future phases would be for the construction of one or more of the dams to dam reaches.

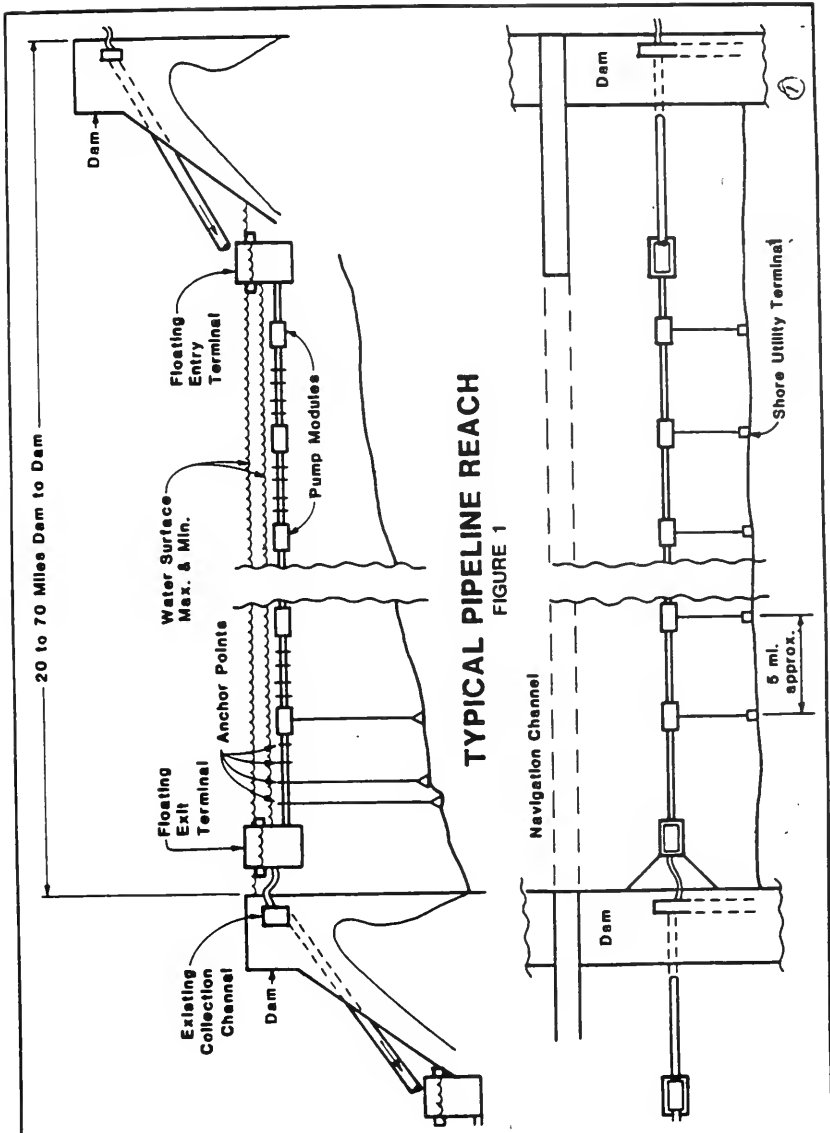
Estimated initial review of Phase I should be completed in 6 months. Several universities in the Northwest are researching now, and it is recommended they perform this review, in concert with a registered engineering/construction firm.

This report was prepared by:

Delmer Boylan, Bruneau, Idaho with J.R. Woodworth and L.W. Lloyd, Boise, Idaho.

October 28, 1992

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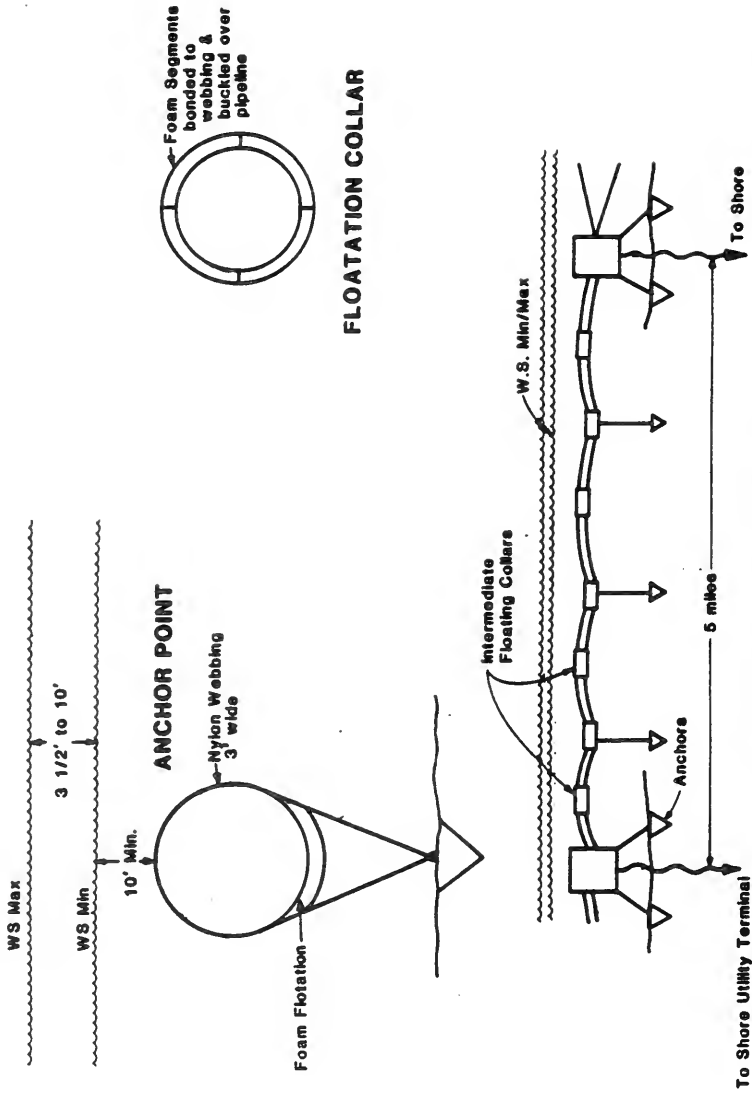
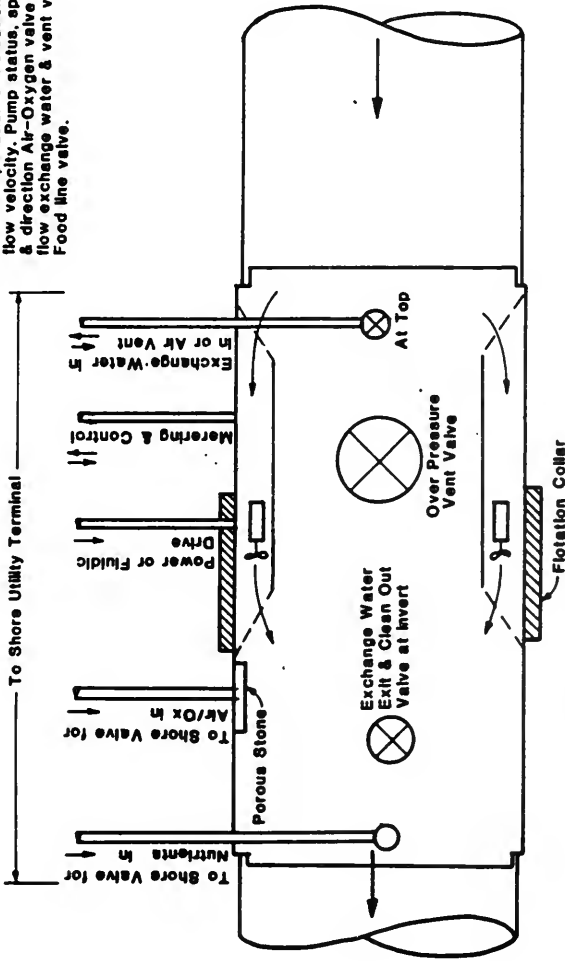


Figure 2

NOTE:
Remote operation & indication for
flow velocity, Pump status, speed
& direction Air-Oxygen valve &
flow exchange water & vent valve
Food line valve.



NOTE

Fan-ducted propeller pumps - adjustable speed, screened
to protect fish from entry, individually reversible for screen cleaning.

PUMP MODULE

Figure 3

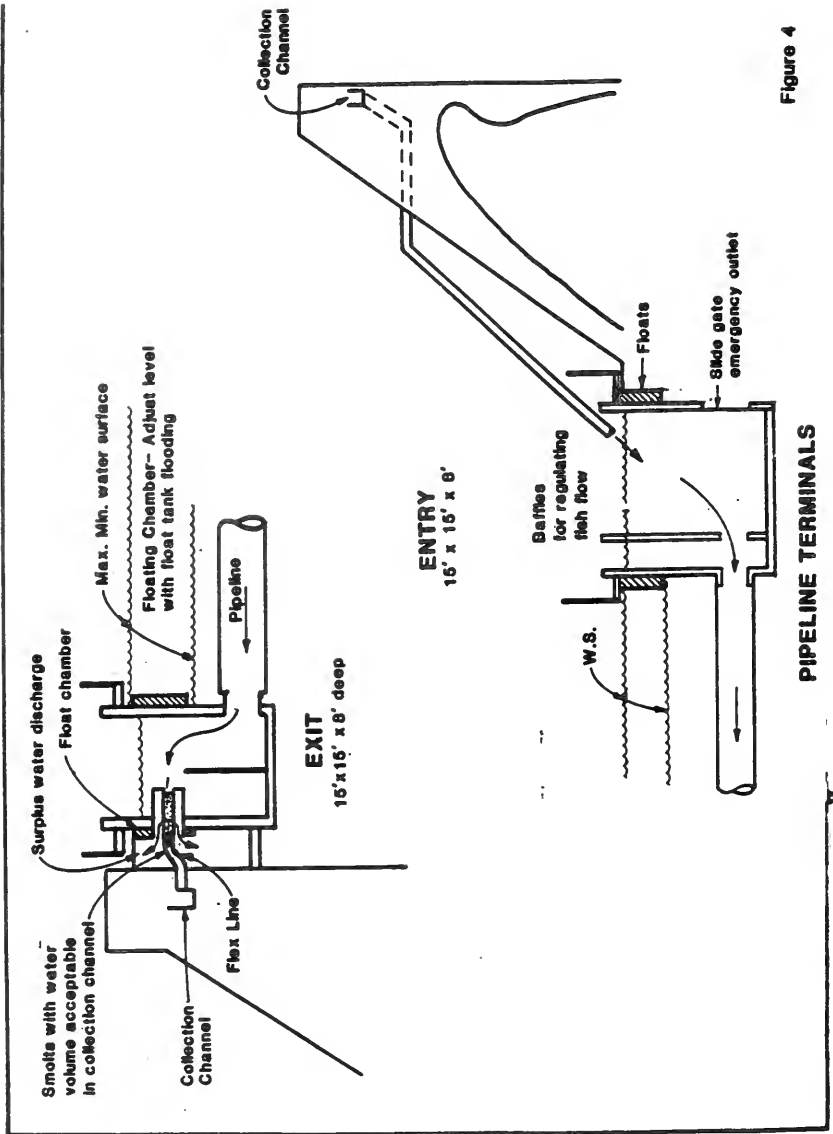


Figure 4

The Idaho Department of Fish and Game has a proposal to use sonic barriers at Dworshak Dam to keep kokanee from getting into the turbines. It is estimated this could be tested for \$200,000.

We are estimating the pipeline concept could be tested for \$300,000-\$500,000.

The pipeline would virtually eliminate all five of the major problems for downstream migration. If guidance proves feasible, you could have 90+ percent of the fish from Idaho at or below Lower Granite done within one year.

It would eliminate:

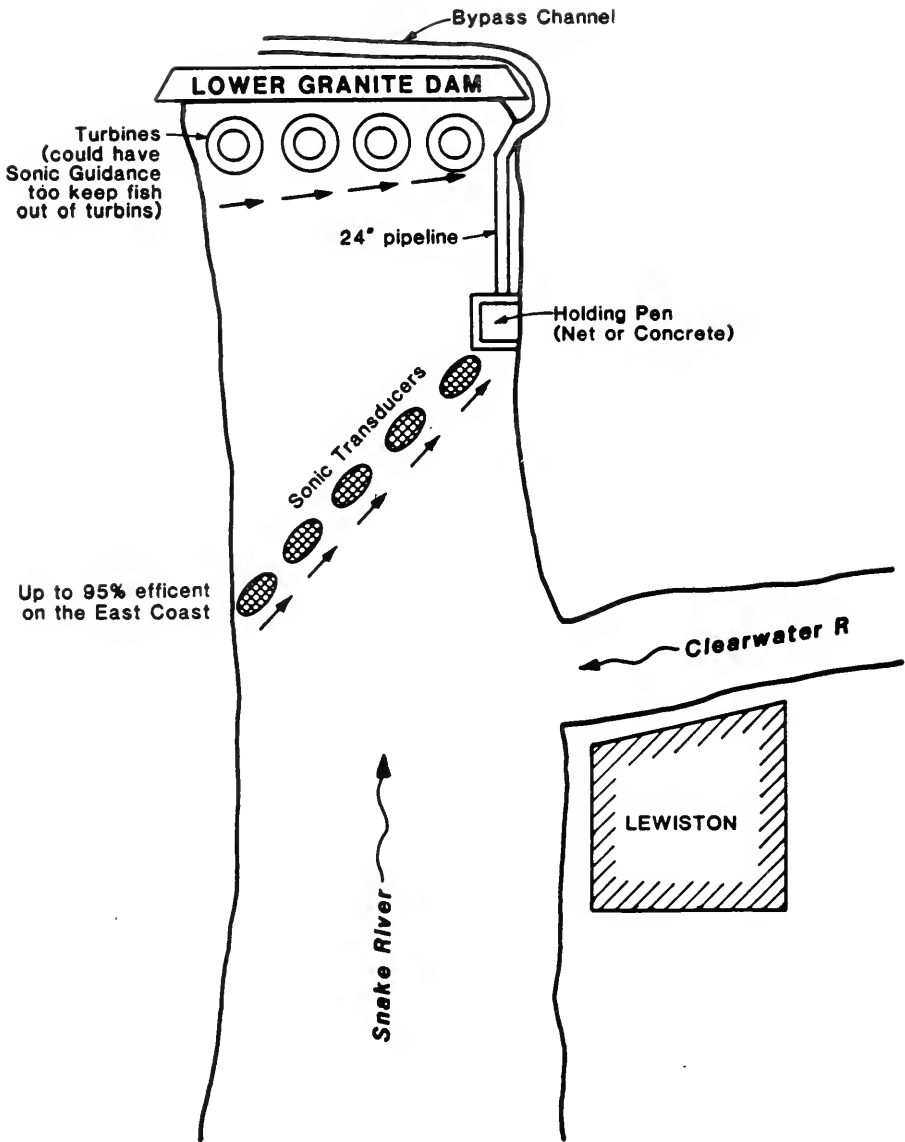
1. Loss of power production;
2. Interference with barge traffic;
3. Interference with irrigation pumps;
4. Loss of various recreation business; and
5. No predation.

Morrison-Knudsen Engineering says it would be the easiest project they have ever undertaken. No ROW, no excavation. Could do the whole stretch from Lewiston to Lower Granite from one five-to-ten-acre site on the Snake River below Lewiston.

Both requests are hung up in the process somewhere between the Bonneville Power Administration and the Corps of Engineers.

We would prefer to get the money through the system in place. If not, we can get the money from a coalition of industries being affected.


Dick Woodworth



PRELIMINARY EVALUATION
BOYLAN FISH TRANSPORT SYSTEM

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THIS PROPOSAL IS DIRECTED AT THE SCIENTIFIC EVALUATION OF THE EFFECTS OF THE BOYLAN FISH TRANSPORT SYSTEM CONCEPT NOT AN ENDORSEMENT OF THE CONCEPT BUT PROPOSES NECESSARY EVALUATION SHOULD IT BE RECOMMENDED BY ENDANGERED SPECIES RECOVERY TEAMS OR THE FISHERIES MANAGEMENT AGENCIES.

INTRODUCTION

This proposal addresses questions inherent in the development of the Boylan Fish Transport System from the perspective of effects on fish quality. If Endangered Species Recovery Teams or the fishery management agencies determine that this concept should be tried, then the proposed evaluation program becomes necessary. **The design of the system needs to be harmonious with the overall goal of benefiting stocks of wild fish.** The efficacy of this system in improving out-migrant survivorship will have to be determined. We envision that such an evaluation of the fish will require four phases (the four phases of this fish evaluation proposal should not be confused with the four phases described in the overall project construction proposal; our phases are subsumed within them).

The first phase of the evaluation is to create the design of the scientific testing protocol within the scope of engineering potentialities and limitations. In other words, some engineering questions will need to be answered before a test system can be constructed in order to make the system "fish friendly." Some experimentation with fish may be necessary to refine answers during this phase.

The second phase of the study concerns an evaluation of a scaled-down version of the system to allow assessment of whether or not the attributes of concern affect the general quality or health of outmigrating salmonids. Should the results of the first two phases be positive, then the third phase of the evaluation could be implemented.

The third phase needed is a short-term testing of a relatively compete system. Short term testing should entail an evaluation of the quality and general well-being of test groups of fish after they have gone through the system--this is needed before all emigrants of the Snake/Columbia system are committed to using this route to the sea.

The fourth phase of evaluation will require an assessment of the survivorship to adulthood of smolts that have been delivered down-river using this system relative to presently employed methods or other options.

This proposal addresses the first two phases. We envision that results of the present proposal should not only meet objectives proposed for those phases but also lead to designs and methods needed for phases three and four as well. In addition, we envision that the assessments that will be necessary to complete phases one and two will lead to answers useful to understanding the nature and potential problems inherent in present fish collection, transport, and bypass systems. In other words, if we are careful in our planning, we should generate data needed to make other decisions as well. Questions not answered relative to presently existing collection/bypass systems may be applicable to the proposed Boylan system as well.

OBJECTIVES

Objective 1. Design the evaluation plan of the preliminary test system (Phase 1).

Subobjective 1. Work with engineers to answers the questions proposed later in this proposal so that the true nature of the test system will be understood.

Subobjective 2. Determine the other germane questions and resolve them with project engineers.

Objective 2. Determine the effects of the preliminary test system on the quality and health of smolts (Phase 2).

Subobjective 1. Test the system with spring chinook salmon smolts.

Subobjective 2. Test the system with other species or races of salmonids as appropriate.

Subobjective 3. If results of subobjectives 1 and 2 are positive, then offer recommendations concerning the physical design of the entire system and the design of the appropriate evaluation scheme.

TASKS

We will need to work with project engineers and others as appropriate to answer the following questions. Answers to these questions may have already been determined by the Boylan-Woodworth-Lloyd project team; these can be deleted from this proposal and the answers used in the design of phase 2. Where answers are unavailable, they will be answered by research proposed in this proposal (phase 2). Answers to many of these questions are germane to other present and proposed fish passage and transport systems as well. The questions that immediately come to mind as "seen through the eyes" of biologists are as follows and are in no particular order.

1. Fish collection or by-pass systems are proposed to be used to get fish through the dams. If it turns out that dam by-pass systems have a major effect on smolts (we believe that this is so), then will exposing the fish to multiple by-passings as the fish encounter each dam in relatively rapid succession cause cumulative stressful experiences? How will the fish be delivered into existing collection systems in a non-stressful manner? What proposals are offered to help the fish negotiate dams that presently do not have collection/ by-pass systems; how will the fish be transported over or through these dams in a non-stressful fashion (e.g., what kind of plumbing, pressure changes, etc.)? Research on multiple entering, exiting, and dam by-passing may be needed. Since temperature is a major controlling factor for

physiological processes of fish, this variable will have to be considered.

2. Is it good or bad for the fish to be in a pipe that allows the penetration of light as proposed? It is known that fish use vision to hold their position in streams, will the fish fight the current in the pipe? Alternatively, perhaps being in a dark pipe for extended periods of time is stressful. This may have to be researched. If it is healthier for fish to have some light, how will the pipe be kept clean from algae etc. that will prevent light penetration?

3. We know that within a species of salmonid that there can be different juvenile migration patterns. Do we know that it is good for all types of migrants to be delivered rapidly below Bonneville or do some migrants need significant time to develop into "good smolts" en route? Will fish, even true smolts, exiting the system below Bonneville have the capacity or motivation to migrate further without a recovery period, and if they do, will they be able to adjust to the salinities that they would shortly encounter? Evaluations on migratory behavior, swimming ability, and seawater adaptability are needed.

4. Some forms of outmigrants apparently need to feed during their migration. It is proposed that food can be added at pumping sites. What kind of food (e.g. artificial) would be added and do we know that wild smolts will accept it within the

few days that they would be in the system, particularly since they will also find themselves in the novel environment of the pipe? Further, do we know that fish will (can) eat while moving? Will having major resting stations that also entail feeding perhaps also create a host of other problems for wild fish (e.g., crowding, species interactions, water quality, etc.)? Careful, thorough research may be necessary here.

5. Is it possible that fish could get overcrowded in the pipe? Crowding for wild fish may concern vision (nearest neighbor concept) at lower densities before water quality becomes a factor, more of a concern to hatchery fish. Will the proposed plumbing and repeated exiting and re-entering the system cause physical damage (descaling, mucus removal) to the fish, particularly if they are crowded? The pipe would be a place where healthy and diseased individuals are in close proximity, as in present collection/transport systems. Is it possible that fish with and without different loads of pathogens may perform differently? Individual BKD infection level may be important. This will require study. Will the presence of one species of fish adversely affect other species at times when they are sympatric in the pipe? This will also require study.

6. What are the proposed features of the down-river exit sites? At what depth will they be located, will they be in mid channel and in or out of flow, etc.,? How many exit sites are

envisioned? Tests on potential congregation of predators will none-the-less most likely be needed.

7. We need to learn more about any potential hydraulic feature of the pipe that could affect the fish. For example, will turbulence cells be created at certain locations, perhaps where water is added, and are these sites where the fish might fight the current until they become exhausted? Will curves or bends in the pipe cause the water to assume a helical flow pattern rather than a laminar flow? If so, how fish react to this situation would need to be tested.

8. As with other by-pass and transport systems, there is always the concern about imprinting and subsequent homing ability. We need to learn more about how stress affects this process, but it is an extremely difficult concern to address directly without adult tag return testing. We will consider several laboratory approaches.

9. Are there other physical features of the proposed system of which we are unaware that could affect fish? For example, are there certain features that are needed to prevent the snagging of large debris like trees? Do certain provisions have to be made in certain locations so as not to interfere with navigation?

General Methods: We will use our presently established procedures to evaluate stress and recovery in appropriate tests

in the prototype system. These will entail clinical signs of stress such as plasma cortisol, glucose and lactate. In addition, we will ascertain the general health of the fish by monitoring several features of the immune defense system. Physical effects of the system will be determined by monitoring descaling and mucus production. Mortality rates of fish having experienced the system will be determined.

We will evaluate several performances of test fish such as seawater adaptability and swimming ability. Orientation ability/migratory motivation will be established by tracking radio-tagged individuals. Behavior of the fish in the pipe will also be observed by video camera and other means.

Attempts will be made to determine whether or not pathogens may concentrate in the system. We will try to do this at a hatchery where the fish range in BKD infections, using pipes to hold small lots of fish for specified periods of time.

Once trials have been conducted with spring chinook, we will then evaluate fall chinook and systems also having the presence of steelhead at various densities. Major trials will also have to be repeated at different temperatures inherent to the Snake and Columbia. All tests will have the appropriate number of replications and test animals to allow for statistically interpretable results. Hatchery fish will be used as test animals because wild fish are unavailable for study. We recognize that migrants (smolts) will have to be used for the main evaluations.

BUDGET

This is a very preliminary budget based on the assumption that most of the effort during the first year of the study will be directed at answering questions posed under phase 1 and design of appropriate testing to be carried out during the second year of the study. While some preliminary testing can be initiated during the first year, migrants are by necessity the object of the study, and hence the work schedule will be largely driven by when smolts are available. The work schedule will also be contingent on when a test system is constructed and becomes operational. It is our experience that two "field seasons" are typically the minimum that are required to allow for solid conclusions of data.

	OCFRU	IDCFWRU
Year 1.		
Research Assistant	25,000.00	25,000
OPE (46% OCFRU)		11,500.00
Travel	2,000.00	2,000
Operating	10,000.00	10,000
Experiments	2,000.00	2,000
Administrative		
3 mo @ 24.6% (off-campus)	3,105.75	
9 mo @ 46% (on-campus)	15,149.99	
Total	<u>68,755.74</u>	

Year 2.

Same as year 1 except the addition of two graduate students for a total of 42K.

BUDGET

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	OCFRU	IDCFWRU
Year 1.		
Research Assistant	25,000	25,000
OPE (46% OCFRU, 27.5 IDCFWRU)	11,500	6,875
Travel	2,000	2,000
Operating	10,000	10,000
Experiments	2,000	2,000
Administrative		
3 mo @ 24.6% (off-campus)	3,106	15% 6,881
9 mo @ 46% (on-campus)	<u>15,150</u>	
Total	<u>68,756</u>	<u>52,756</u>
GRAND TOTAL		<u>121,512</u>

Year 2.

Same as year 1 except the addition of two graduate students for a total of 42K, + 15K operating + appropriate administrative costs.

Building a highway for salmon



Most experts agree that the best way to save Idaho's dying salmon runs is to get them to the Pacific Ocean faster. Eight dams now block their 900-mile migration from Lewiston to the Pacific Ocean. The dams create a series of slackwater reservoirs that slow the migration of baby salmon. The trip took a few weeks before the dams were built. Now it takes months. Most salmon die from disease and predators as a result.

Here are some of the methods being considered to speed the salmon migration:

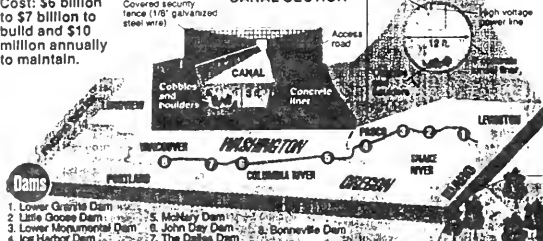
CANAL

One method would be to build a 350-mile concrete-lined ditch that would stretch from Lewiston to Bonneville Dam at The Dalles in Oregon. The salmon would be tunneled into the ditch along with a water flow of 1,500 gallons per second. Cobbles would be placed along the bottom of the ditch, and the top would be completely covered with a steel security fence. In places, the ditch would have to be tunneled through mountains. Ponds would be strategically placed along the way to allow the salmon to get off the freeway and rest. Technical problems that remain include devising ways to let out salmon that need to get off before Bonneville Dam.

Cost: \$6 billion to build and \$10 million annually to maintain.

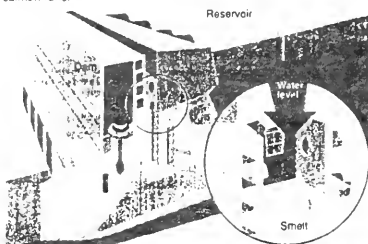
Covered security fence (1 1/2" galvanized steel wire)

CANAL SECTION



RESERVOIR DRAWDOWN

This would involve letting water out of four reservoirs on the lower Snake River each spring to increase streamflows and flush the salmon to the ocean. The dams would have to be modified to let fish through at lower water levels. Idaho has pushed for this method as the best and cheapest way to save the salmon runs.

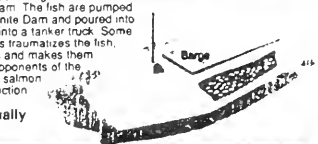


Cost: \$1 billion to \$5 billion according to the Army Corps of Engineers, but Idaho officials say the cost would be less than \$1 billion.

BARGING

This is the method currently used to get salmon around the dams and downstream. The fish are pumped 1/4-mile through the Lower Granite Dam and poured into an aquanum on a barge or put into a tanker truck. Some studies indicate that the process traumatizes the fish, weakens their immune systems and makes them more susceptible to disease. Opponents of the method say that if it worked the salmon wouldn't be on the brink of extinction.

Cost: \$1.9 million annually



SONICS

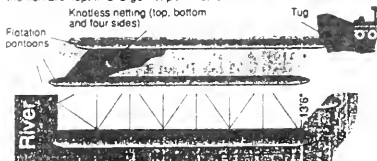
This is experimental technology being considered by federal officials. It would use sound to guide the salmon through reservoirs to fish-bypass facilities. The technology has been successfully used on the East Coast to keep fish away from dams, and tests have shown it also can attract fish. But the technology is still experimental, corps officials said.

Cost: unknown



NET PEN

This is similar to barging, but instead of being put in an aquanum, the fish are kept in a large net pen that is towed downstream.



Cost: \$21 million to build and \$6 million annually to maintain

September 25, 1993

To: The Bonneville Power Administration Task Force of the House Natural Resources Committee

From: Paul Beistel, Board Chair of the Friends of Buford Park and Mt. Pisgah, 2805 University Street, Eugene, OR 97403

Subject: The Wildlife Mitigation Fund budget

At this time the Bonneville Power Administration has committed sixty-seven million to wildlife mitigation projects in Montana, Idaho and Washington. We understand that similar negotiations are now underway with Oregon, and these are scheduled for completion by the end of this year or shortly thereafter.

It now appears that BPA proposes to defer any further commitments from its Mitigation Fund until 1996 in order to ease pressure on its budget. This would create an intolerable situation for Oregon in which the BPA would fund relatively low priority projects in the three other states but would not fund urgent high priority projects in Oregon.

A case in point is the Mt. Pisgah acquisition adjacent to Springfield, Oregon. BPA, NWPPL, and ODFW personnel give it high ranking in their preliminary reviews. It is an old abandoned sand and gravel company ownership of 1200 acres which was included as a key element in the 3500 acre Mt. Pisgah park approved by the state legislature in 1973, but not purchased when appropriated funds were exhausted on other adjacent ownerships. The owner is willing to sell. The Trust for Public Lands is eager to negotiate a fair price and to purchase an option. Unless the public agencies demonstrate their ability to move promptly on this deal, the owners plan to convert the property to a golf course subdivision and an RV park. They will not wait until 1996, and the public agencies will lose this critical unit forever.

In making whatever cuts in the BPA budget that may be necessary, the established policies and procedures must provide equitable treatment for all four states in order that critical acquisitions like the Mt. Pisgah project are not irretrievably lost.

We enclose news and editorial treatment of this issue by the Eugene Register Guard.

CITY/REGION

Wildlife refuge purchase imperiled

■ **Preserve:** Budget woes at BPA dry up possible funding for proposed project near Mount Pisgah.

By HARRY ESTEVE
The Register-Guard

Belighting by the Bonneville Power Administration could hamper efforts to preserve a wildlife-rich area near Mount Pisgah that is slated for development, the head of a Eugene conservation group said.

A group known as the Friends of Bulford Park and Mount Pisgah has been looking to the BPA as a source of money to buy several hundred acres adjacent to the Howard Bulford Recreation Area southeast of Eugene.

But the BPA, in an effort to hold down Northwest electricity rates, wants to trim spending on wildlife refuges. The spending is required by federal law and is supposed to be paid for by the federal government. The BPA has funded millions of acres along the Columbia and Snake rivers.

"The BPA money is specifically for the Columbia

Basin, specifically for riparian lands," said Chris Orsinger, president of the Friends group, which has been working for about two years on a proposal to get the Mount Pisgah land into public ownership.

The Pisgah acreage, situated at the confluence of the Middle and Forks of the Willamette River, is a riparian drainage and is home to one of the state's biggest heron rookeries as well as osprey, Canada geese, salmon spawning grounds and other wildlife.

Ponds and wetlands dot the area, along with views of the slopes of Pisgah and the river valley.

"There's all sorts of diversity out there," Orsinger said.

"And I'm talking just about the ponds. I'm not even talking about the riparian areas or upland wooded areas."

The land is owned by Wildfish Land Co., a Eugene sand and gravel operation that mined the river bottom land for aggregate. Wildfish now is moving ahead with plans to "reclaim" the mined area and develop the parcel into a golf course, business retreat, recreational vehicle park, and housing complex, said Randy Hiedik, the company's director of general services.

Ever since land around Mount Pisgah was given to Lane County for use as a park, conservation groups have had their eye on the Wildfish property as a way to greatly expand the park area. "Until now, however, there has been no concerted effort to acquire it."

NA

The power council and the BPA are wrapped in a dispute over spending on fish and wildlife programs and over who decides how much spending is enough.

Power council Chairman Stan Grace recently mailed letters to members of the Northwest congressional delegation asking Congress to fund the BPA's fish and wildlife protection program.

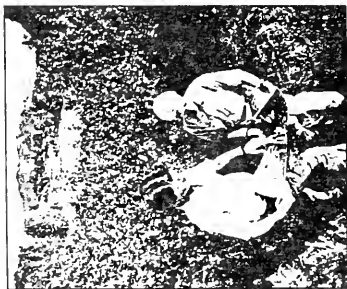
BPA Director Brady Hardy responded with a bluntly worded letter of his own, saying, in essence, that the BPA has spent millions on salmon protection efforts and must find some way to cut its budget.

"We're saying we can't do everything," she said.

"We have felt that some of the wildlife measures might be able to be deferred," BPA spokeswoman Duky Mahar said. "Measures for endangered species and weak salmon stocks are more important. The council doesn't agree with us."

Six years of lower-than-average rainfall and snowpack hurt power production in the Northwest, leading to a near financial crisis at the BPA this year. The agency is proposing a 14 percent to 16 percent rate increase for this fall and doesn't want to increase rates more, Mahar said.

"We're saying we can't do everything," she said.



Chris Orsinger (left), Paul Belant check map at area.

budget for any projects," Paquet said. Although the BPA has paid for some land purchases in Oregon, they fall far short of what the power council foresaw when the 1980 Northwest Power Act ordered the BPA to begin fish and conservation programs.

"We've been in the process for 13 years to get the BPA to get the money to get mitigation off the ground," Paquet said. "The longer we wait, the more the cost of land is going to go up. We're going to lose some of these sites."

The Wildfish land is a case in point, he said. Although there's been no formal proposal to purchase the property, the BPA has been asked to include it in the wildlife mitigation program, and it has "been raised pretty high," Paquet said.

"We're not closing the opportunity for others to acquire it," Hiedik said. "We'd rather go ahead and proceed with the development we proposed, but it just makes good sense not to foreclose options."

No price has been mentioned, although Wildfish officials have met several times with Orsinger and his group. Orsinger said the BPA is the only potential funding source — the federal land and Water Conservation Fund — had too many good projects lined up already.

But BPA funding for wildlife refuges may have dried up — for Oregon, at least. In recent months, the federal power marketing agency signed agreements giving \$10 million to Idaho for riparian land purchases, \$12 million to Montana and \$15 million to Washington.

Oregon was supposed to be next in line for funding, said Peter DeFazio, U.S. House of Representatives member from Oregon's Planning Council. The council made up of two representatives each from Oregon, Washington, Idaho and Montana, oversees BPA's fish and wildlife mitigation programs.

"Now the BPA is saying they have no money in the Turo to WILDLIFE, Page 1C

He said he feels optimistic that the BPA will restore money in its budget for wildlife habitat acquisition. The optimism is "based on my discussion with senior BPA officials," DeFazio said.

The next meeting of the BPA task force will review the idea of wildlife mitigation, DeFazio said.

"I found the BPA to be very responsive when I point out problem areas," he said. "We're about to begin the hearings on wildlife and salmon. I'm hopeful the BPA will be similarly responsive."

Orsinger's group is asking members and others to write members of Congress in support of a BPA-funded purchase of the Wildfish property.

Rep. Peter DeFazio, who as a Lane County commissioner became interested in the land, still likes the idea of buying it, but says the force that is taking a magnifying glass look at the BPA could be influential in future decisions on spending for wildlife refuges.

"I look at BPA as the most likely source of funding (for the purchase), but only if there's a willing seller," DeFazio said. "Our area would be best served if we could get (Wildfish) willing to sell the land to agencies that would make it part of the park."

The Register-Guard

EDITORIALS

Eugene, Oregon, Saturday, September 11, 1993

Restore wildlife funds

By law, the Bonneville Power Administration must "protect, mitigate and enhance" wildlife harmed by the Northwest's system of dams and power lines. The BPA, however, is treating an important part of its responsibility to wildlife as though it can be ignored until the budgetary climate improves. Oregon stands to lose the most because of the agency's attitude, and the state's congressmen should do what they can to change it.

Protecting, mitigating and enhancing wildlife has generally meant creating refuges to replace areas blocked or inundated by dam construction. In the past, the BPA has approved the purchase of wetlands or other wildlife preserves on a project-by-project basis. Last year, the BPA abandoned that process in favor of giving the states a lump sum, which state wildlife agencies could use as they see best for purchasing or improving wildlife habitat.

Montana has already received \$12 million for wildlife mitigation under these lump-sum trust fund arrangements. Idaho has received a partial payment of \$10 million. Washington and the BPA agreed to an interim figure of \$45 million, with more to come eventually. But Oregon has received no trust fund money, and none is included in the BPA budget for this purpose.

Delaying wildlife habitat protection and improvement projects tends to increase their cost and diminish their effectiveness. Opportunities to purchase wildlife-rich land grow more scarce each year as development advances. Establishing or maintaining viable wildlife populations becomes more difficult as the pressure on those populations increases. The BPA won't save money in the long-run by deferring its wildlife obligations.

A prime example of the potential for lost opportunities lies near Eugene and Springfield at the confluence of the Middle and Coast forks of the Willamette River. This area, once mined for gravel, is rich in fish and wildlife. It's an excellent candidate for acquisition as a preserve to mitigate dam-related damage to fish and wildlife elsewhere in the Willamette basin. The land lies next to the Howard Buford Recreation Area and could become part of a wetlands and greenway system extending all the way to Fern Ridge Reservoir.

The Wildish Land Co. owns the property and is interested in building

houses, a golf course, a recreational vehicle park and business retreat center. Wildish is willing to consider offers for public acquisition, but the company won't defer its development plans indefinitely, waiting for a public offer that may never come. If the Wildish parcel is developed, finding other property whose purchase as a preserve would do as much for wildlife would be difficult and expensive.

There's no guarantee that any particular parcel would be saved if Oregon received its share of BPA wildlife trust funds. The state Department of Fish and Wildlife would evaluate the costs and benefits of purchasing or leasing sensitive lands throughout the area affected by BPA projects. But the Wildish land certainly looks like a good candidate for acquisition. Without BPA funds, it and similarly valuable wildlife areas may soon be lost.

The BPA's budget problems make it harder to find money for any of its fish and wildlife conservation programs. Among those programs, restoring wild salmon is taking first priority because several runs have been listed as endangered species. Yet the cost of the BPA's entire wildlife program has never been more than a small component in the agency's rates. Giving Oregon its share of trust fund money would not require a substantial shift in the BPA budget.

Sen. Mark Hatfield, whose appropriations subcommittee reviews the BPA budget, says he would be reluctant to insert a line item requiring the agency to spend money on Oregon wildlife. He shouldn't have to — measures to protect, mitigate and enhance wildlife are already required by law. The law doesn't say the BPA must compensate for power projects' damage to wildlife when it's convenient or when budgets are loose. Wildlife programs are a continuing obligation — one that the BPA should not ignore.

Quotable

From the newspaper Borba, of Belgrade, as reprinted in World Press Review: "Whether you want to admit it or not, Bosnia was written off and erased from the list of the living precisely at the moment when its independence and sovereignty were recognized by the world's political elites."



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Via Facsimile

October 8, 1993

The Honorable Peter DeFazio,
Members of the BPA Task Force
U.S. House of Representatives
Washington, D.C. 20515

Re: Supplemental Comments on Salmon Issues

Dear Chairman DeFazio and Members of the Task Force:

On behalf of the Natural Resources Defense Council, I would like to express my appreciation for the leadership you showed at the September 24 hearing on salmon. If the federal agencies under your jurisdiction were managed with the intelligence, thoughtfulness and creativity members of the Task Force brought to that hearing, Columbia Basin salmon would have far better prospects for recovery than they do at present.

This letter responds to a question Chairman DeFazio posed to me during the hearing, challenges a selective list of statements made by other panelists, and further develops some of NRDC's recommendations.

I. Is BPA's Lump Sum Funding Agreement with Montana a Useful Model for the Transfer of Fish and Wildlife Program Funds?

I understand that the Montana agreement takes the form of a settlement of BPA's mitigation responsibility for wildlife habitat. Mitigation for wildlife habitat inundated by a dam is more amenable to settlement than is BPA's salmon mitigation obligation for the operation of federal dams. Inundation happens only once. The funds provided by BPA compensate Montana for that loss on an acre-by-acre basis, allowing the state to restore habitat elsewhere.

By contrast, BPA has an ongoing responsibility under the Power Act to protect and restore salmon. This responsibility includes managing the dams in a way that provides equitable treatment for fish -- an operational obligation not easily transferred to another entity through a lump sum payment. The Council's Fish and Wildlife Program consists of both modifications in dam operations (such as flow releases and reservoir drawdowns) and other activities BPA must fund. The funded activities include research, monitoring, hatchery construction, installation of screens at diversion facilities, and other measures. They aim to increase the effectiveness of changes in dam operations, but by no means eliminate the need for those changes.

A direct transfer of funds for those activities to another entity could not, therefore, indemnify BPA from its operational obligations under the Power Act (or the ESA) as the Montana arrangement did for a limited wildlife mitigation responsibility. On the other

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Members of the BPA Task Force
 October 8, 1993
 Page 2

hand, accountability for the success of projects funded under the Council's Program can and should be transferred along with the funds.

NRDC considers a contract a far more appropriate vehicle for the proposed funding transfer than a settlement agreement. A contract could ensure accountability through an arrangement such as the following: an entity such as the Council or the Fish and Wildlife Service would prepare a detailed implementation plan in consultation with the fish agencies and Tribes; the plan would include performance standards, monitoring and reporting requirements; continued funding for a particular activity would be conditioned on meeting performance standards or making necessary adjustments; the Council would approve the plan and oversee implementation.

Indemnification for BPA from responsibility for fish survival would be appropriate, in my view, only under an agreement that required federal agencies to meet adequate mainstem flow or travel-time objectives. NRDC would oppose an alternative in which BPA provides the fish agencies with a lump sum to fund projects and purchase fish flows, in return for relieving BPA of further salmon obligations. We believe that scenario conflicts with the directives for equitable treatment in a number of ways. It improperly eliminates biology as a driver of salmon restoration measures. It restricts operational changes based on how much they cost when system operations are being maximized for power (rather than optimizing the system for fish and power, as required under law). It provides no incentive for BPA to manage the energy system more compatibly with salmon flow needs (through seasonal rates, conditions in power sales contracts, etc.), and otherwise reduce the cost of salmon recovery. It does nothing to compel progress toward reservoir drawdowns. In short, it would perpetuate many of the problems the Task Force heard described in Boise.

2. Disputable Statements

John Day. If I heard correctly, General Harrell said the Army Corps is preparing an environmental impact statement on the lowering of John Day pool. Yet the Corps says it will not "accelerate the John Day option in advance of the System Configuration Study (SCS) process."¹ The Corps hopes to finish the SCS in 1998 or 1999, by preliminary estimates. That means an EIS for John Day might be completed within 5 or 6 years!

In fact, there is every reason to accelerate the EIS on John Day. Congress authorized \$2 million to be spent in 1993 on planning and design of the John Day pool lowering. The Council's Program calls for implementation of the pool lowering in 1994. After the Boise hearing, Corps staff told me the agency now plans to gather information on John Day for the next 2 years, then allow the region to decide whether to break John Day out of the SCS

¹ Army Corps of Engineers, Salmon Passage Notes, September 1993, p. 5.

Members of the BPA Task Force
 October 8, 1993
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study.² The region already decided John Day studies should proceed, but apparently the Corps listens to neither Congress nor the Council.

Money is available, and the federal agencies should complete environmental review of the John Day proposal immediately (as part of another supplement to the 1992 interim flow improvements EIS or through some other vehicle).

Snake Water Bank. In response to the Chairman's question about Snake Water Bank rules that discourage water transfers for salmon, Sherl Chapman stated that the purpose of the upper Snake reservoirs is to provide water for agriculture. I disagree. Though agriculture was once a primary purpose of those projects, some authorizations were conditioned on fisheries mitigation³ and more recent laws have altered the original purposes. In 1980, the Power Act broadened the purposes of projects that generate hydropower (a definition that includes most of the Bureau's upper Snake dams) to put fish on an equal footing with other project purposes. The ESA applies to the Bureau's operations. Under the state Public Trust doctrine, a balance must be reached between the public fishery values of water and its consumptive use. NRDC believes a careful review of water bank rules and the law governing interstate commerce will reveal no valid reason for the water bank's discriminatory last-to-fill rule.

Burden of Proof. Al Wright's testimony states that "there is no credible, scientific information currently available that proves what water levels salmon require for their migration through the Columbia River System. This is the first question that must be answered." That statement incorrectly implies that fish agencies bear the burden of proving that a given level of flow is required. On the contrary, the Council's Program calls for implementation of drawdowns unless they are shown to be infeasible. Moreover, the region's fish agencies and tribes have been in accord for years about the needed level of flow or travel time.

BPA's Calculation of its Salmon Costs. BPA estimates the cost of water budget increases since the ESA listings (about 3 million acre feet) to be about \$110 million per year. The Bureau has an authorization for about 3 MAF in the Columbia that has not yet been diverted for agricultural use. If the Bureau were to succeed in diverting that water, BPA would accept the diversion as a fact of life in a multiple use system. It would make appropriate adjustments to reduce the hydropower cost of the diversion, not broadcast the cost at every opportunity as if the water belonged to BPA. Why should the cost of

² Phone conversation with John Kranda, project and study manager for the Corps' John Day studies, Oct. 12, 1993.

³ Before Congress authorized large upper Snake reservoirs such as Palisades, for example, the Bureau promised to provide flows below diversion dams to mitigate impacts on fish. See "The Columbia River, a Comprehensive Departmental Report on the Water Resources of the Columbia River Basin," Bureau of Reclamation, 1947.

Members of the BPA Task Force
 October 8, 1993
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releasing water to meet salmon mitigation obligations be treated differently? Cost estimates are appropriate as a means of comparing alternative ways to meet biological objectives, not as a means of undermining the validity of the objectives.

3. Recommendations

I'd like to reiterate and expand several recommendations contained in my earlier testimony. First, ongoing Congressional oversight of BPA is needed to ensure compliance with the Power Act and effective implementation of any corrective steps you recommend now. That oversight should continue in some form at least until the federal agencies have made substantial progress on the Council's long-term program. If the Task Force cannot be made a standing committee, perhaps it could be reconvened after a year or some other suitable time interval.

Second, I want to underscore the importance of putting teeth into the implementation of the Council's Salmon Strategy. The most important step the Task Force could take is to compel the agencies to move forward quickly on reservoir drawdowns (or their biological equivalent). A transfer of management responsibility for fish and wildlife funds could eliminate duplication and increase the effectiveness of the Program, but the projects funded under that program in no way substitute for safe in-river passage. A new coordinating body is unlikely to improve conditions for salmon unless Congress also makes the Power Act's mandate to provide adequate flow (or travel time) more specific.

The Task Force could recommend any of several options to speed progress toward safe mainstem passage. The Natural Resources Committee could use its authority and influence to restrict appropriations for Columbia River navigation, hydropower and irrigation facilities until implementation of drawdowns is back on track. Alternatively, the Task Force could recommend legislation to establish binding flow or travel time objectives in the mainstem Columbia and Snake Rivers, perhaps as part of a bill that sets up a new coordinating body.⁴

Third, I urge the Task Force to promote water management institutions that provide a level playing field for fisheries. The Bureau should not allow its water supplies to be transferred under water bank rules that discriminate against fish. Federal funds should not be used to support conservation without guarantees that saved water will benefit fish. The Natural Resources Committee could ensure that such provisions are a precondition of any new projects involving irrigation in the Northwest, and ask the Bureau to provide a legal opinion on water bank rules.

⁴ Objectives should be based on the recommendations of the Fish Agencies and Tribes, and phased in on a schedule consistent with timely drawdown implementation. A sliding scale could accommodate hydrologic variation. The objectives should be set as hard constraints in the Pacific Northwest Coordination Agreement.

Members of the BPA Task Force
October 8, 1993
Page 5

Thank you again for the opportunity to comment on these important issues. If I can be of any assistance to the Task Force as it prepares its recommendations, please don't hesitate to contact me.

Sincerely,

A handwritten signature in cursive script that reads "Karen Garrison". The signature is written in dark ink and is positioned above the printed name.

Karen Garrison



COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION

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October 8, 1993

Honorable Peter DeFazio
United States House of Representatives
1233 Longworth House Office Building
Washington, D.C. 20515-3704

Dear Representative DeFazio:

Please find enclosed additional testimony of the Columbia River Inter-Tribal Fish Commission for the record of the Bonneville Power Administration Task Force of the Natural Resources Committee.

As you may recall, the Commission's testimony delivered on September 24 emphasized the tribes' frustration over the failure of the Regional Act to contribute in any significant measure to recovery of Pacific salmon in the Columbia Basin. This is not only a failure of the United States to implement its promises to secure treaty fisheries; it is also a failure to honor its international obligations under the United States-Canada Pacific Salmon. As stated in a letter dated July 14, 1993 from the Assistant Secretary of State for Oceans and International Environmental and Scientific Affairs to the Pacific Salmon Commission:

I hereby determine that the United States is in jeopardy of not fulfilling its international obligations under the United States-Canada Pacific Salmon Treaty

The reason for such determination follows:

A central ingredient of the Pacific Salmon treaty is the chinook rebuilding program it established designed to rebuild chinook stocks on a coast-wide basis by 1998.

. . . .There has been a general decline in the proportion of stocks that are classified as rebuilding, while the proportion of stocks that are not rebuilding has increased. Furthermore, 29 of the 42 indicator stocks had lower escapements in 1991 than in 1990 and less than half (16 of 36) of the escapement indicator stocks with goals are currently classified as Above Goal, Rebuilding, or Probably Rebuilding.


The Commission especially appreciates your willingness to consider creative approaches to Columbia Basin salmon recovery as stated in your letter of October 1 to Administrator Randy Hardy. As noted in our testimony, the Commission supports the elimination of the BPA Fish and Wildlife Division and the transfer of its responsibilities to a responsible fishery entity. Since the adoption of the Regional Act and, particularly, the Fish and Wildlife Program in 1982, the BPA Fish and Wildlife Division has attempted to both prioritize and micromanage the elements of the Fish and Wildlife Program at great cost to the ratepayers. These costs stem not only from the duplicative functions provided by the Division but also by the transaction costs incurred by the fish and wildlife agencies and tribes when negotiating with the biologists and other technical experts employed by BPA.

This problem is best exemplified by the attached correspondence between the Northwest Power Planning Council Chairman and the BPA Administrator. These letters demonstrate not only the continuing conflict between the Council and BPA over Fish and Wildlife Program implementation, but they also ignore the fundamental measure of accountability for the program with regard to Pacific salmon in the basin: recovery and restoration of naturally-spawning populations. How can the United States expect the Canadians to respect and support our salmon rebuilding efforts when those efforts primarily consist of interagency squabbling about funding levels and authorities?

On behalf of the Commission, I urge you to use the BPA Task Force to resolve these problems consistent with the trust responsibility of the United States to Indian tribes. As you are aware from your participation on the Natural Resources Committee, the Department of Interior is the lead department in carrying out the trust responsibility of the United States to tribes. While other departments are charged with trusteeship concerning tribal resources, many have not viewed these responsibilities as policy matters. For this reason, I would recommend that you explore the transfer of program implementation, on an interim basis, to the United States Fish and Wildlife Service until and unless a basinwide fish and wildlife entity is designated by the fish and wildlife agencies and tribes.

Thanks again for your leadership as chairman of the BPA Task Force and please do not hesitate to call me or the Commission's staff if we may be of any assistance.

Sincerely,


Ted Strong
Executive Director

cc: NW Congressional delegation

COLUMBIA RIVER INTER-TRIBAL FISH COMMISSION
Responses to questions posed in the
House Natural Resource Committee's BPA Task Force Letter
Dated August 11, 1993

1. *Is the NPPC's Strategy for Salmon an appropriate and sufficient framework for salmon recovery efforts in the Columbia Basin? What are the strengths and weaknesses of the Strategy for Salmon?*

Unfortunately, the Strategy for Salmon is neither an appropriate nor sufficient framework for salmon recovery efforts. Fundamentally, salmon recovery depends on the cooperation of state, federal and tribal fishery managers. However, the relationship between the fishery managers and the Council and its staff is largely dysfunctional. At the state level, significant disagreements between the state fish and game agency, that state's Council members, and the Council as a whole are often associated with seemingly minor fish management decisions. Although the condition varies from state to state, as a practical matter, state fish and game agencies have become disenfranchised from the Council and its staff.

With regard to the tribes, the Council has yet to come to grips with the treaty commitments the United States made to the tribes. It has been extremely awkward, expensive, and time consuming for the tribes to be forced to seek the consent of the Council before proceeding with each incremental phase of a salmon mitigation project funded under the Northwest Power Act.

When Congress enacted the Northwest Power Act, it expected that the Council would defer to the expertise of the fish and wildlife agencies and tribes and not become a super fish and wildlife agency.¹ In fact, the Act explicitly requires that the Council give "due weight to the recommendations, expertise, and legal rights and responsibilities of the federal and the regions state fish and wildlife agencies and appropriate Indian tribes." 16 U.S.C. §839b(h)(7). However, absent meaningful dialogue between the Council and the governmental agencies charged with managing the salmon resource, the deferential relationship Congress envisioned in the Northwest Power Act has broken down.

The Council attempted to realign itself with the fish and wildlife managers in the Strategy for Salmon by limiting its involvement in project-by-project administrative decision making. Thus, the Council called for expansion of the Implementation Planning Process (IPP), which is an agreement between BPA and the fish and wildlife managers (through CBFWA) allowing limited tribal and agency involvement in BPA's processes for prioritizing and selecting fish and wildlife projects for funding under the Act. Yet, as several witnesses testified at the Boise field hearing, the IPP is broken and BPA's commitment to effectively fund and implement the

¹ See 126 Cong. Rec. H10683 (daily ed. Nov. 17, 1980) (remarks of Rep. Dingell).

The Strategy for Salmon is not sufficient to remedy these serious institutional problems. The principals from the states, tribes, and federal government must recognize and address these and other related problems to fulfill the promises of the Northwest Power Act.

One of the most serious weaknesses of the Strategy for Salmon is its failure to establish "biological objectives" for salmon rebuilding. Using the Council's own analogy, the Strategy for Salmon has added rooms to the house without describing a floor plan. The Council's failure to establish biological objectives in the program is contrary to the Act, and among the chief reasons that the Yakima Nation and Sierra Club Legal Defense Fund² have urged the Ninth Circuit to set aside the Strategy for Salmon.

One of the stronger aspects of the Strategy for Salmon is the Council's request to land management agencies to fully protect existing salmon habitat conditions from further degradation due to such activities as road building, logging, and grazing. While well-intentioned, the Council's measures do not appear to be a serious factor in regional debates addressing federal land management practices.

- 2) *Is implementation of the Strategy for Salmon on track for timely completion? How well are federal and state agencies coordinating their activities with each other and with the Council to achieve timely implementation?*

Up until the field hearing, the Council and BPA were at odds with each other over BPA's commitment to fund the measures in the Strategy for Salmon. Virtually on the eve of the hearing, they reached an understanding allowing each to represent to the Committee that BPA was fully funding the Strategy for Salmon. That view, however, is not shared by the region's tribes, and state and federal fish and wildlife agencies, which were not meaningfully included in the Council's policy dialogue with BPA on fish and wildlife funding. Through the Columbia Basin Fish and Wildlife Authority, the fishery managers estimated that approximately \$114 million would be necessary to fully fund the Strategy for Salmon.

One of the mechanisms identified by the Council to improve implementation of fish mitigation projects on the ground is often referred to as the "sub-regional implementation process." Sub-regional implementation was intended by the CBFWA (who recommended it to the Council) and the Council as a primary means for prioritizing and coordinating salmon measures at the local level. Sub-regional implementation follows logically from the sub-basin

² On behalf of Northwest Resource Information Center (Ed Chaney), Trout Unlimited, Oregon Natural Resources Council, Idaho Salmon and Steelhead Unlimited, and The Wilderness Society.

planning carried out in cooperation by the Council and the fishery managers.³ The Council called for sub-regional implementation to be integrated with the Implementation Planning Process. Due to BPA's reluctance, sub-regional planning is one of the key measures in the Strategy for Salmon that remains unfunded.

- 3) *Bonneville asserts that its current financial condition will prevent or delay full implementation of the Council's fish and wildlife program. What measures can Bonneville take to ensure more stable funding for the Council's fish and wildlife programs, given its wide swings in revenues?*

Tremendous inefficiencies exist in the current mechanism for funding fish and wildlife projects under the Northwest Power Act. One of the most important measures for ensuring more stable funding is streamlining the funding process. We estimate that an approximate twenty to thirty percent savings in fish and wildlife program dollars could be realized by changing the mechanism for administering these funds. These savings should be applied to stabilizing the funding base and accelerating implementation of measures under the Act.

- 4) *What can be done to facilitate water conservation and other changes in regional water management to provide increase flows for power production and salmon recovery.*

A 1987 study (Tolisano et al.) funded by the Columbia River Inter-Tribal Fish Commission identified significant potential for water conservation measures and water transfers (e.g. water rental, dry-year leasing, water sales) in the upper Snake River Basin (above Brownlee Dam). Subsequent studies (Brendecke et al.) by NMFS confirmed these conclusions. Currently, BPA has limited its attempts to lease upper Snake River water to \$1 million per year. If BPA were able to significantly increase the amount of funds available for water acquisition, we believe significantly greater commitments of water would be available from the upper Snake. To put this issue in perspective, BPA recently estimated that it incurred revenue losses of approximately \$20 million to maintain Lower Snake River pools behind Lower Granite, Little Goose, Lower Monumental, and Ice Harbor dams at minimum operating levels in 1993. Further inquiry may indicate that greater improvements in water particle travel time, a key measure for improving smolt survival, could be made by increasing investment in water acquisition investments.

³ Unfortunately, the Council refused, during Phases I to III of the Program amendments, to address the 37 sub-basin plans and Integrated System Plan recommended to the Council by CBFWA. These efforts took three years and several million dollars to complete. The efforts were carried out by the state fishery managers and Indian tribes and describe actions necessary to rebuild salmon populations basin-by-basin.

5) *Are existing institutions and institutional arrangements at the state and federal level adequate to implement salmon recovery plans? What improvements should be made to ensure better regional coordination among many federal, state, tribal, and private entities that must work together to achieve salmon restoration? In particular, the following alternatives have been suggested for better implementing salmon restoration plans. Please comment on each:*

a) Providing additional public involvement in existing federal processes, including review of annual operations;

The Pacific Northwest Coordination Agreement (PNCA), a private contract among three federal agencies and a variety of Northwest public and private utilities, is the dominant mechanism for coordinating operations of Columbia and Snake River storage projects both in the United States and Canada. Since its inception in 1964, the PNCA has not provided for public involvement. Rather, the each signatory assumed the responsibility for representing non-power constraints at its individual projects (e.g. salmon needs) to the others during the process. However, as Congress recognized in the Northwest Power Act, the needs of salmon depend upon coordinated operations of the entire system. The PNCA did not anticipate such "system requirements," and is inadequately structured to fully integrate salmon needs with system operations.

The tribes, none of which are signatories to the PNCA, are best able to represent their interests in the Columbia Basin's salmon resources. Relying on the Bureau of Reclamation, BPA or the Corps of Engineers to represent the tribes' viewpoints is unsatisfactory. At a minimum, the PNCA must be restructured so that the tribes have a direct voice in planning operation of the Columbia Basin hydrosystem.

b) Changing the membership, structure, or authorities of the Council;

As you know, the Act does not provide for any direct representation of the tribes on the Council. Furthermore, none of the states has appointed a tribal representative to the Council since its inception. While the tribes have repeatedly called for the establishment of a government-to-government relationship with the Council, the establishment of such a dialogue has been very elusive. The Council continues to primarily function as a forum for interaction among the four Northwest governor's offices.

c) Incorporating salmon recovery measures into the Pacific Northwest Coordination Agreement;

As noted above, the PNCA should be restructured to allow direct tribal representation. Simply asking the existing parties to the PNCA to incorporate salmon recovery measures in their planning does not ensure that the planning will acceptably reduce the risk of non-compliance

with adopted measures. Neither do such efforts necessarily allow salmon to share the benefits of runoff conditions not planned for. Since PNCA planning conservatively assumes poor runoff conditions, in-season system flexibility often exceeds planned operations. Currently, this in-season system flexibility is primarily optimized for power purposes.

d) Adopting a new agreement or creating a new regional entity among BPA, the Corps of Engineers, the Bureau of Reclamation, the council and others to administer annual operations;

Existing processes should be restructured to allow direct tribal representation in the administration of annual operations.

e) Transferring a lump sum in fish and wildlife funds from BPA to fish and wildlife agencies to be administered separately by those agencies for salmon recovery, while providing accountability for results of the work funded;

The Commission favors such an approach to fish and wildlife funding, provided that the tribes are full partners with the fish and wildlife agencies in fulfilling these responsibilities. As noted above, significant efficiencies could be obtained by stream-lining funding process through the use of block grants and similar mechanisms.

f) Legislatively creating a new entity or designating an existing agency with authority to mandate salmon recovery.

The Commission has been working closely with the Department of the Interior to ensure that all Interior agencies act consistently with the tribes' treaty rights and related interests in salmon while fulfilling their responsibilities under the ESA. Likewise, we have attempted ensure that NMFS' policies under the ESA reflect the tribes' concerns and interests. The tribes still have major concerns with NMFS administration of the ESA, particularly with regard to NMFS definition of species⁴ and NMFS policy on the use of artificial propagation in recovery actions. NMFS still has not meaningfully consulted the tribes in development of a final artificial propagation policy.

⁴ More specifically, the Commission has objected to NMFS' definition of what constitutes a "distinct population segment" under the Act to mean an "evolutionarily significant unit" (ESU). The Commission believes that NMFS' ESU definition will preclude recovery of listed salmon stocks.

- 6) *Have BPA and other federal entities met federal treaty and trust responsibilities to the Indian tribes in managing the resources of the Columbia River? What, if any, additional steps should be taken to improve federal relations with the tribes?*

The numbers salmon available to the Columbia River treaty tribes for harvest have been reduced from millions in 1855 to 20,000 to 40,000 in recent years. The United States' treaty guarantees securing the tribes' fishing rights are not being fulfilled.

The United States must demonstrate a commitment to rebuilding salmon runs specifically to benefit the tribes. Under the treaties, state and federal management must provide for salmon harvest by the tribes as an objective co-equal with conservation of the salmon. Currently, millions of dollars are being directed to various federal agencies to fulfill the mandates of the Endangered Species Act to conserve members of the listed populations. Undoubtedly some of this investment will inure to the benefit of the tribes' fishing interests. However, obtaining a "no-jeopardy opinion" from NMFS under the ESA is a fundamentally different objective than fulfilling the United States' treaty fishing guarantees. Unfortunately, a no-jeopardy opinion appears to be the "holy grail" for most federal agencies' actions affecting salmon, while fulfilling treaty fishing rights is anathema.

The federal government must first understand the treaty commitments it made to the Columbia River tribes. Then, these treaty commitments must become as engrained in federal agency management and policies as efforts to protect salmon under the ESA.

Unfortunately, federal agencies, such as BPA, openly disavow their responsibilities to the tribes. Consider the following remarks directed by BPA only a few weeks ago to the Council regarding the Phase IV amendments to the fish and wildlife program.

It is BPA's objective to fulfill its fish and wildlife obligations to the Region through implementation of activities that benefit the Region as a whole. BPA is committed to spending ratepayer dollars to benefit all ratepayers equally. Since BPA had no obligation to act specifically on behalf of the regions' Indian tribes prior to the Act, and since the Act did not affect or modify and treaty or other right of an Indian, BPA has no duty to fund specific measures aimed at restoring or mitigating for "losses that the Indian culture has suffered."

Evidently, BPA has no understanding of their federal government's trust responsibility, let alone the federal government's treaty obligations to the tribes. BPA's complete ignorance of its obligations to fulfill Indian treaty rights simply underscores the tribes' call for elimination of BPA's Fish and Wildlife Division.

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August 12, 1993

Randall Hardy, Administrator
 Bonneville Power Administration
 P.O. Box 3621 - A
 Portland, OR 97208

Dear Mr. Hardy,

Over the past two months, the Council and Bonneville had extensive discussions concerning the Council's Fish and Wildlife Program and Bonneville's anticipated budget and intention to implement the fish and wildlife program in fiscal year 1994. Our exchanges of information have been very helpful and have given us a clear picture of Bonneville's funding intentions for the next year.

Our review of these intentions indicates that important elements of the Council's Salmon Strategy will not be implemented. In addition, the budget provides no funding for new resident fish and wildlife measures which may be adopted during the Council's current amendment proceedings. In the past, Bonneville has been willing to identify a placeholder level of funding in accordance with Council amendment action. An alternative is to agree to reprogram funds from other areas of the Bonneville budget. In this case, however, Bonneville has expressed a clear intention to delay funding new resident fish and wildlife measures until 1996.

This proposal appears insufficient to implement the fish and wildlife program, and could lead to a Council determination that Bonneville's actions are inconsistent with the Program.

The Council is not seeking an unlimited amount of funding for the fish and wildlife program. Nor is the Council attempting to set the specific level of Bonneville's budget. It is, however, the Council's role to specify the actions needed to protect, mitigate, and enhance fish and wildlife and it is Bonneville's obligation to develop a budget sufficient to implement these actions. We believe it is dangerous and ultimately more expensive to delay the implementation of the

Randall Hardy
August 12, 1993
Page 2

Council's Salmon Strategy and to defer important resident fish and wildlife mitigation for two years.

We appreciate the financial difficulties which have led to the current rate increase and we have assisted in this difficult circumstance by recommending and endorsing specific cuts. However, as we have expressed in prior correspondence, the failure to fund the Salmon Strategy and the planned two year delay in resident fish and wildlife mitigation are ill-advised. Delaying these investments in fish and wildlife mitigation will only increase future costs while making it more difficult for the region to make progress in this important effort.

Accordingly, we strongly encourage you to re-evaluate the planned level of activities in 1994 and commit the agency to full implementation of the Council's Fish and Wildlife Program. We will encourage the Congress to ensure that the Council's program is fully and aggressively implemented.

We look forward to a continuing effort to resolve this important issue.

Sincerely,



Stan Grace
Chairman

cc: Congressional Delegation

8-20-93 5:11 PM

Admin: F&W Budget

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Department of Energy
Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208 - 3621

August 19, 1993

OFFICE OF THE ADMINISTRATOR

In reply refer to: AR

Mr. Stan Grace, Chairman
Northwest Power Planning Council
851 SW Sixth Avenue, Suite 1100
Portland, OR 97204

Dear Mr. Grace:

This letter responds to issues raised by the Northwest Power Planning Council (Council) in August 12, 1993, letters to Bonneville Power Administration (BPA) and to Pacific Northwest members of the Senate's and House of Representative's appropriations committees. The letters question the adequacy of BPA's funding of the Council's Fish and Wildlife Program (Program).

As a reminder, the event that led to the reduction in the fish and wildlife budget was a dramatic decrease in BPA's financial health as a result primarily of the drought and increased fish flows required by the Endangered Species Act (ESA). It is important to keep in mind as we discuss this \$15 million cut, that BPA's costs for fish and wildlife have increased from approximately \$150 million in 1991 to over \$300 million in 1993. The BPA program may be criticized on the margins, but the overall trend certainly reflects the region's increasing commitment to protect and enhance fish and wildlife. Enclosed is a chart, which was developed last April. The chart is presently being updated to reflect our final rate proposal, however it displays our overall trend. I recognize that some Council members have stated that BPA should have incurred a larger rate increase. I simply do not agree. I believe BPA's competitive position and impact on the economic health of the region dictated strong actions. The relatively small cuts in the fish and wildlife expenditures encourage efficiency and the establishment of priorities. I ask you to join with me, as we have done in all other program areas, to find ways to deliver the desired results in the least costly manner.

We have consistently stated that, as a matter of policy, Bonneville is committed to full implementation of the Council's Fish and Wildlife Program as a comprehensive guide for mitigating fish and wildlife impacts of Federal hydroelectric projects in the Columbia River Basin. However, in response to Bonneville's extreme financial stress, we must carefully schedule and sequence measures described in the Program, and balance their pace of implementation with Bonneville's other responsibilities. In making those decisions, we called on the Council and others to help us to assure that no vital, time-urgent measure was delayed.

Bonneville's funding for Fiscal Years 1994-1995, incorporated in the 1993 Rate Case, should be sufficient to carry out the Council's Program, including all of the important elements of the

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Council's Salmon Strategy, and the additional requirements required by the Endangered Species Act (ESA). We had expected that some of these measures could be funded with savings from other activities that the Council would agree, based on changing circumstances and new information, could be revised or deferred.

The Council advised Bonneville that, except for some measures which BPA had previously identified for deferral, the Council did not see an opportunity to revise or defer measures, and that all measures must be funded. In response, we indicated that Bonneville was willing to identify some limited additional funding for weak stock protection in FY 1994 and FY 1995, and that Bonneville wanted to work with the Council to identify the specific measures that were essential. As of August 11, we believed that discussions between the Bonneville and Council staffs would succeed in addressing the Council's concerns. We were surprised, therefore, by your letters of August 12.

We were particularly surprised by the Council views about funding Phase IV measures. Bonneville's funding levels for the next two years were set to be as lean as possible because of our financial problems. We also believed that the region, including the Council, agreed that Bonneville needed to transition from a program focused on doubling overall runs to one that focused on weak stocks. This would help meet the continuing ESA challenge, and would require most of our funding capability. We did not expect Phase IV, which is directed at resident fish and wildlife, to be an equally urgent requirement. Bonneville's budget includes a modest amount for planning, design and environmental activities for new activities under Phase IV, but we assumed that the much more costly capital-intensive measures would not begin until FY 1996.

It is also important to remember that Bonneville has expended significant funding and effort on wildlife activities since passage of the Council's Wildlife Rule in 1989. We funded about \$8 million worth of wildlife loss assessments in the region to determine the level of losses resulting from construction of the dams. Prior to adoption of the Wildlife Rule, we concluded a \$12.5 million trust with the State of Montana for the accomplishment of its wildlife objectives. Additionally we purchased nearly 70,000 acres of high quality wildlife habitat in the region and will soon provide about \$10 million in funding to mitigate for wildlife losses at Dworshak Dam in Idaho. We recently completed an interim wildlife agreement with the Washington Wildlife Coalition which provides them with \$45.5 million through 1997, primarily for the acquisition of wildlife mitigation lands. Finally, we funded the Oregon Wildlife Coalition to develop mitigation planning from which we will begin negotiating a trust agreement with Oregon. Even though we have not started negotiations, we agreed to and have purchased two high priority properties, Conforth Ranch and Burlington Bottoms. The Council's 1989 Wildlife Rule called on BPA to accomplish mitigation for 35% of the regional losses over the next ten years. We believe we are on course to meet that goal, and perhaps are well ahead of schedule.

We have also not ignored resident fish. Bonneville has moved forward with a number of important actions which we felt were warranted, even in view of the priority on anadromous fish. We cooperated with Washington Water Power and Idaho Fish and Game to construct the

Cabinet Gorge Kokanee Hatchery on the Kootenai River in northern Idaho. We have completed resident fish hatcheries on the Colville and Spokane Indian Reservations and at Sherman Creek on Lake Roosevelt, areas in which salmon and steelhead runs were blocked by construction of Federal dams. Bonneville is funding studies of resident sturgeon and development of a low capital sturgeon hatchery facility in northern Idaho. In Montana, BPA has funded research that lead to a mitigation plan for Hungry Horse Dam which was adopted by the Council in March of 1993. We are currently funding implementation of that plan. BPA is also initiating the development of a mitigation plan for Libby reservoir in 1994. Although not credited toward resident fish mitigation, much of the wildlife and anadromous fish habitat work that has been accomplished since 1982 provides similar benefits to resident fish as well.

Furthermore, we are not confident about the amount of funding which will be required for Phase IV. The Council does not plan to adopt Phase IV until well into FY 1994, so the final elements of Phase IV are not known. We cannot see any basis for the Council staff's opinion (expressed before the comment period on the draft Phase IV proposal has closed) that the Phase IV program will cost \$5 million per year for resident fish, and another \$5 million per year for wildlife in each of fiscal years 1994 and 1995.

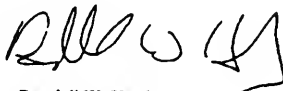
In conclusion, we have expended significant efforts to work constructively with the Council, the Columbia Basin Fish and Wildlife Authority, and other regional interests to identify solutions to problems resulting from our current financial conditions. We have offered to consider using remaining financial flexibility to fund those critical, time-urgent measures that all agree simply cannot wait for two years.

We recognize the importance of the Council's Fish and Wildlife Program as a comprehensive guide to Bonneville and the Region. We also thought, prior to your August 12 letters, that the Council recognized the serious financial and competitive pressures Bonneville is now facing. These pressures have required BPA to make tough decisions on prioritizing the timing of implementing currently unfunded program measures. In response to our request for Council assistance in prioritizing program measures, we essentially were told that everything else in the Council's program has a non-schedulable, number one priority.

That sentiment is conveyed in the Council request that Congress direct BPA to provide the additional funding. Given the competitive pressures that Bonneville faces, there simply has to be a better, more thoughtful way to balance these often conflicting requirements. We would urge Congress not to provide directive language in the FY 1994 Appropriations Act, but instead challenge both BPA and the Council to resolve this issue ourselves. We should be able to identify necessary near term funding for priority measures, and to provide BPA sufficient implementation flexibility to phase in lower priority measures in a manner which minimizes their financial impacts.

Simply put, this problem should be solved in the region, not in Washington, D. C. You have my commitment to continue to pursue such a resolution.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. Hardy', with a stylized flourish at the end.

Randall W. Hardy
Administrator

Enclosure:

cc:

Senator Mark O. Hatfield
Senator Patty Murray
Senator Slade Gorton
Senator Conrad Burns
Congressman Norm Dicks



State of Idaho

DEPARTMENT OF WATER RESOURCES

1301 North Orchard Street, Statehouse Mail, Boise, Idaho 83720-9000

Phone: (208) 327-7900 FAX: (208) 327-7866

CECIL D. ANDRUS
GOVERNOR

R. KEITH HIGGINSON
DIRECTOR

October 27, 1993

REC-10

NOV 5 1993

WASHINGTON, DC 20541

Representative Peter A. DeFazio
U.S. House of Representatives
Committee on Natural Resources
Washington, D.C. 20515-6201

Dear Representative DeFazio:

I am writing in response to testimony presented by Randall W. Hardy at a Committee on Natural Resources Task Force meeting conducted in Boise, Idaho, on September 24, 1993.

Mr. Hardy stated "flows for fish migration are important . . ." He testified about flow augmentation, spill agreements, and storage releases. He failed to point out, however, that the purpose of flow augmentation is to increase water velocities.

Mr. Hardy specifically avoided any discussion of alternative ways to enhance velocity, including drawdowns of the lower Snake River reservoirs below minimum operating pool. He discussed most, if not all, other possible recovery actions, from construction of new storage to squawfish bounties. The exclusion of any discussion of the drawdown alternative at least implies a predisposition against drawdown as a method of enhancing velocities.

Legislation enacted by the 1991 Idaho legislature, codified as Idaho Code § 42-1763A, allowed the Director of the Idaho Department of Water Resources to shortcut normal review processes for rental of storage for velocity enhancement. The Director is only authorized to shorten the normal review if:

- (a) The releases are part of an annual flow augmentation plan,
- (b) The water rented is part of a regional coordinated effort to enhance salmon runs, and
- (c) Other parties are making a proportional contribution to solving the salmon migration problem.

The authority expires on January 1, 1995.

Mr. Hardy stated release of storage may be "prevented by the state of Idaho." The Director of the Idaho Department of Water Resources will allow the release of storage water for velocity enhancement in 1994 if there is a regional coordinated plan with

Representative Peter A. DeFazio
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proportional contribution that results in significant change to existing system operation. Hardy's failure or unwillingness to recognize drawdowns and change in hydropower operation implies unwillingness to proportionally contribute to a solution.

In the upper Snake River basin (diversions above Milner dam), the irrigators have operated a water bank of storage water since the drought period of the 1930's. The water bank operation was codified into law in 1979. The water bank has always distributed excess water first to water-short irrigators within the Minidoka project. After irrigation demands above Milner Dam are satisfied, water can be rented to any user below Milner. Because any water discharged below Milner will not be saved in storage for the next year, the bank rules require that refill of any storage released below Milner be the last to fill the next year. If the reservoirs do not refill, the irrigator who rented his water downstream from Milner Dam cannot refill his storage until all other storage rights are refilled. While this may be viewed as a disincentive for downstream releases, the rule encourages carryover of storage into subsequent years to protect against storage shortages for the lands intended to be irrigated by the storage projects. It is also necessary to protect the water right priorities of the several reservoirs.

The last to fill rule imposes an additional risk on the irrigator that the storage he releases out of the project boundaries will not refill the next year. BPA can rent water by compensating the irrigator for the risks of releasing water outside the boundaries of the project.

Mr. Hardy alleges that uncertainty about water supply and political environment may preclude delivery of water. He fails to acknowledge that BPA resisted renting water at a higher price to compensate an irrigator for the risks he incurs when renting water below Milner Dam.

The last to fill rule was followed long before BPA sought to lease water. While Mr. Hardy views the procedure as "convoluted," without the last to fill rule, rental of substantial water by a few irrigators outside the project boundaries will result in water shortages which would be shared by all the users within the project boundaries.

Mr. Hardy concludes that extensive conservation of water will increase flows. The state of Idaho believes in conserving water, if it can be shown that conservation of water will improve the total hydrologic health of the basin. In some cases, conservation of irrigation water may actually deplete flows

Representative Peter A. DeFazio
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during times when flows may be critical for salmon. For instance, the flows in the Snake River from Milner Dam to approximately the Oregon state line are supplied almost exclusively by springs which discharge into the river from the Snake Plain Aquifer. The Snake Plain Aquifer is a groundwater storage reservoir which derives its water from natural recharge (rainfall) and percolation of diverted water, primarily from irrigation. Percolation from irrigation into the aquifer approximately doubled the discharge to the Snake River during the early part of this century. Efficient water systems (conservation) and groundwater pumping, coupled with some effects of the long term drought, have recently caused significant declines in spring flows to the Snake River. A committee has been appointed to determine how to stabilize the spring flows which rely on recharge to the Snake Plain Aquifer.

The effect of drought on flows of the Snake Plain Aquifer springs is much slower than the effect of drought on surface water flows. The springs discharge an almost steady outflow. On the other hand, the effect of drought on surface water systems is more immediate. If irrigators divert less water but irrigate the same number of acres, less water will percolate into the Snake Plain Aquifer, and more water will be available for storage in the reservoirs. In high water years, more water will be released and perhaps wasted downstream. In low water years, more water may be available for storage, but the steady flow from the springs will have decreased, and may not discharge nearly as much high quality, cold water to the Snake River. The flows from the aquifer provide some minimum base flows, even during drought periods. Conservation could actually result in less available water during water-short years. Conservation is not the panacea alleged by its advocates.

Finally, Mr. Hardy's testimony discusses problems with acquiring Idaho water for velocity enhancement, without mentioning any necessary contribution by agricultural interests in the states of Oregon and Washington. For example, the Owyhee project, just across the border, stores a large volume of water, but there is no mention of even any attempts at acquiring water from the other states. As I mentioned before, each entity must proportionally share the sacrifice.

Sincerely,


R. Keith Higginson
Director



Copies of the above letter were mailed to the following:

Randall Hardy, Administrator
Bonneville Power Administration
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Portland, Oregon 97208-3621

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Corps of Engineers-NPD
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Portland, Oregon 97208

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Washington, D.C. 20515-6201



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